UNCLASSIFIED

~~CONFIDENTIAL~~

US ARMY MATERIEL DEVELOPMENT
AND READINESS COMMAND

ANNUAL REPORT OF
MAJOR ACTIVITIES

1972

HEADQUARTERS
US ARMY MATERIEL DEVELOPMENT
AND READINESS COMMAND
ALEXANDRIA, VA 22333

CLASSIFIED BY: CHIEF OF STAFF, DARCOM
SUBJECT TO GENERAL DECLASSIFICATION
SCHEDULE OF EXECUTIVE ORDER 11652
AUTOMATICALLY DOWNGRADED AT
TWO YEAR INTERVALS
DECLASSIFIED ON 31 DEC ~~1983~~ 1978

REGRADED Unclassified 31 Dec 78
(Appropriate Classification) (DATE)

~~CONFIDENTIAL~~

UNCLASSIFIED

U.S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND

ANNUAL REPORT OF MAJOR ACTIVITIES

FISCAL YEAR 1972
(RCS-CSHIS-6)

Prepared by

Historical Office

Headquarters, U.S. Army Materiel Development and Readiness Command

1 February 1977

PREFACE

This Annual Report of Major Activities, prepared in accordance with the provisions of AR 870-5, covers the tenth fiscal year of life for the United States Army Materiel Command (AMC). AMC was redesignated as the US Army Materiel Development and Readiness Command (DARCOM) in January 1976. Since much of the history was prepared prior to this date, the designation, AMC, is used throughout the text. The history was prepared in part from submissions of the headquarters staff elements and project managers discussed, and in part from sources, referenced in footnotes, assembled through the operation of the DARCOM Historical Sources Collection Program and special research efforts. The press of several non-deferrable demand historical projects requiring the attention of the entire historical office and the depletion of the historical staff over an extended and continuing period caused delay in the preparation and processing of the FY 1972 Annual Report of Major Activities.

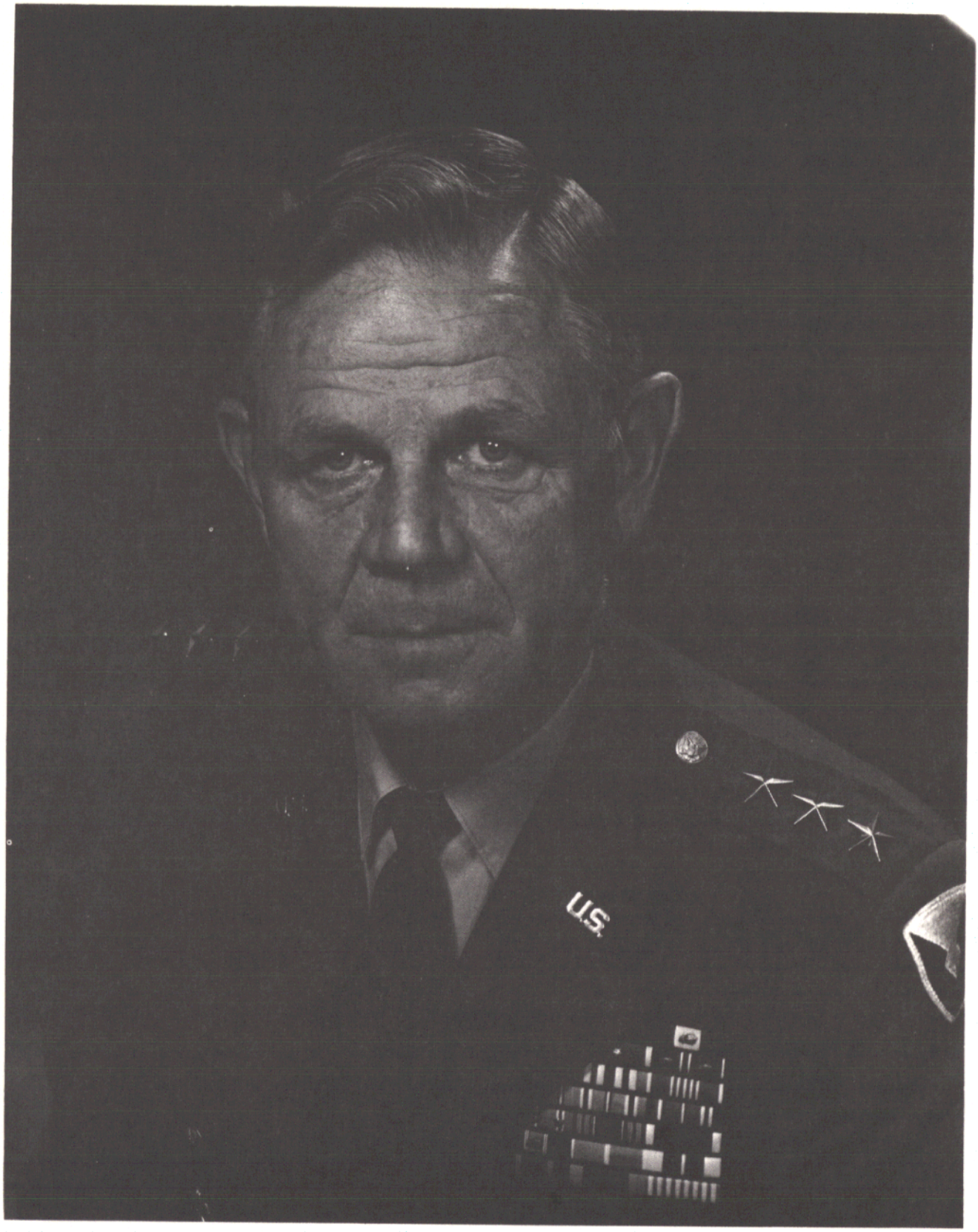
FY 1972 was a year that saw AMC struggling to refine and improve its logistics management structures and techniques in all areas while coping with problems associated with the phasedown of Vietnam operations. It was the year when AMC planners pursued the achievement of The Optimum Army Materiel Command (TOAMAC) through the ultimate consolidation, realignment, reorganization, reduction, and/or closure of marginal or no longer required subordinate commands, installations, and activities. It was a year in which AMC, in the face of developmental setbacks, sought to reorient and redirect its major weapons system acquisition processes and to improve materiel readiness worldwide.

The FY 1972 Annual Report of Major Activities, which addresses these issues and many more was, as in previous editions, a joint effort. Mr. Andrew Putignano prepared Chapters I - Command Management, VII - Supply, and VIII - Maintenance. Mr. Charles W. Lynch prepared Chapter II - Resources Management. Dr. Howard K. Butler prepared Chapters IV - Research and Development and X - Quality Assurance. Mr. William E. Depuy, Jr. prepared Chapter IV - Requirements and Procurement. Mr. Myles G. Marken, Sr. prepared Chapters V - Project Management: Weapons Systems, VI - Project Management: Equipment and Support Systems, and XI - Highlights and Trends. Mr. Marcel F. Coppola prepared Chapter IX - International Logistics. All writers are, or were, members of the Headquarters, AMC Historical Office except Dr. Butler who is a historian with the US Army Aviation Systems Command. Mr. Depuy has since left the employ of DARCOM.

The manuscript was edited and graphics arranged by Mrs. Patricia J. Parks and it was prepared by Mrs. Parks, Mrs. Laura A. Pennix, and Mrs. Betty J. Thomas. Mr. Marken, Senior Historian and Senior Action Officer for the DARCOM-wide Annual Report of Major Activities Program planned and coordinated the entire project.

DALE BIRDSELL
DARCOM Chief Historian

General Henry A. Miley, Jr.
Commanding General
U. S. Army Materiel Command



LTG Woodrow W. Vaughan
Deputy Commanding General
U. S. Army Materiel Command

MG John R. Guthrie
Deputy Commanding General
for Materiel Acquisition
U. S. Army Materiel Command

MG James G. Kalergis
Deputy Commanding General
for Logistic Support
U. S. Army Materiel Command
June 70-May 72

MG Theodore Antonelli
Deputy Commanding General
for Logistic Support
U. S. Army Materiel Command
May 72-Jul 73

MG Charles T. Horner, Jr.
Chief of Staff
U. S. Army Materiel Command

Dr. R. B. Dillaway
Deputy for Laboratories
U. S. Army Materiel Command

U. S. ARMY MATERIEL DEVELOPMENT
AND READINESS COMMAND
ANNUAL REPORT OF MAJOR ACTIVITIES
FISCAL YEAR 1972

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

245-082 O - 77 - 2

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

FIGURES

TABLES

CHARTS

CHAPTER I

COMMAND MANAGEMENT

(U) Constantly striving to get the best value for every dollar spent, US Army Materiel Command (AMC), in Fiscal Year 1972, pursued command-wide problems through the use of studies, plans, and programs. Significant among these were: the Depot Study which reorganized the depot system and created a five-year plan; the Automatic Data Processing (ADP) program attempted to standardize the variety of systems throughout the command; the AMC Laboratory Plan envisioned an improved AMC technical competence and capability; the AMC Maroun System study established methods of relating base operations funding requirements with measures of installation outputs and The Optimum Army Materiel Command (TOAMAC) realigned the command structure of AMC.

Depot Study

(U) Several factors blended to create an environment that encouraged a change in the existing depot system. This included a declining workload, diminishing defense resources, the reduction in the Army force structure, and the advent of sophisticated computer systems. In view of the above, the Deputy Commanding General for Logistics Support directed a 90-day study to develop and identify the optimum AMC Depot system, that would include a command and control system for the FY 72-76 period. Starting on 17 January 1972,[1] the study group also undertook to prepare a five-year Depot Master Plan to implement the optimum depot system.

(U) At that time, the AMC Depot system comprised approximately 30 percent of the AMC work force, or about 47,000 personnel. The system's annual operating expense was about $400 million with a replacement value of approximately $4 billion. At diverse times, virtually every Army end item, component or repair part, was either distributed, overhauled, or stored in the depot system. The system also provided extensive support to the Defense Supply Agency (DSA), the General Services Administration (GSA), and the other military services.[2]

(U) The study group captured the thrust of myriad, on-going, depot related concepts and actions, added to them, and translated them into a study structure. Then it assessed the best ideas, selected the best ingredients, and incorporated them into a five-year depot plan. This resulted in a concept that featured an

---

[1]Office of Depot Management, Historical input for FY 1972.

[2]Depot Master Plan Study, Vol 1, Executive Summary 1972-1976.

evolutionary phased movement toward an optimum AMC Depot System. The plan was designed to effect savings, to insure uninterrupted mission accomplishment, and to provide a basis for further subsequent change, including the capability to expand during full or partial mobilization.

Specific Accomplishments

(U) Specific accomplishments by the study group included a maintenance plan which realigned the current AMC organic depot maintenance missions and workloads among the most effective locations. The evaluation and decision process employed included the application of engineered methods and standards to maintenance activities; quantified evaluation of mission adaptability; and expansion potential and facility appraisal of each maintenance activity. The number of depot/commodity command maintenance relationships was reduced from 49 to 39. The plan also included the termination of FY 1974 of AMC maintenance missions at the USA Support Center, Richmond, Virginia.

(U) The Distribution Plan that was completed essentially concentrated like commodities in fewer storage locations. It reduced the number of assigned general supply depot/commodity command relationships from 52 to 33, and the number of assigned ammunition relationships was reduced from 20 to 18. Further, the plan included the placement of Umatilla Army Depot in an activity posture in FY 1974, similar to Fort Wingate and Navajo.

(U) By placing Umatilla Army Depot in an activity posture, under the Tooele Army Depot, the 16 Army depots were to be reduced to 15 in FY 1974. Also, the three main depot-type activities (SAFEGUARD Army Depot Activity, ARADMAC, and the USA Support Center, Richmond) were to be reduced to two in FY 1974, when the MSA Support Center, Richmond, was to be closed.

(U) The basic mission workload at depots/depot type activities were distribution and maintenance. Guidance and instructions from higher headquarters helped develop the basic mission workloads for FY 1973-76. These workloads represented an important basis for personnel reductions in the depot system, of 14 percent or about 7,049 personnel, through FY 1976.

(U) Developed and refined by the study group, the service center concept was defined as "one activity provides to one or more other activities total or partial functional services, and/or total computer services, with retention of command at each activity." The main services would include ADP, comptroller, procurement, installation and services, and personnel. The application of the concept to the AMC

Depot System would result in appreciable personnel savings of approximately 25 percent in ADP; 41 percent in comptroller; and 25 percent in procurement.

(U) A much-needed standard depot organization was developed. During its implementation phase, it would be tailored to satisfy the special requirements of the various depots.

(U) The command and control system was to be improved by reducing the number of depots and activities, and by strengthening the Office of Special Assistant for Depots, Headquarters, AMC. Strengthening this office would improve the horizontal control of depots/activities toward closer adherence to assigned missions, and to standard organization procedures. This improved horizontal and vertical control will be accomplished without encroaching upon existing directorate responsibilities or creating a layer of headquarters. The improved control will be attained through the strengthening of the existing Office of Special Assistant for Depots.

(U) The Office of Special Assistant for Depots was assigned the responsibility to effect implementation of the plan. To insure controlled progress, it was required to present semi-annual in-process reviews to the DCGLS.

Principal Results of Study

(U) Among the generally salutary results of the study were the increased knowledge and visibility of the AMC Depot System among Headquarters, AMC personnel. Another was the recognition that the establishment of depot complex headquarters between depots and Headquarters AMC as proposed by the 1970 Depot Complexing Study was not required, practicable or cost effective. Instead, it became evident that the proposed evolutionary phased movement toward a service center arrangement among depots/activities offered the best opportunity for improved efficiency and attainment of an optimum AMC Depot System.

(U) The development of this Five-Year Depot Master Plan constituted a blueprint for an optimum AMC Depot System that extended through FY 1976. This study also identified a need to develop a 10-year, long-range depot plan to facilitate an annual upgrading of the five-year, mid-range depot plan. Future mid and long-range depot plans should consider the principle of concentrating workload and resources at the larger, multi-purpose depots and eliminating the smaller depots or placing them in an activity posture.

Automatic Data Processing (ADP)

(U) The steadily rising trend in the President's budget for the AMC five-year program averaged about nine and one-half percent annually. For FY 1972, the total ADP budget was $162.8 million.[3]

(U) These dollars were divided between people costs and hardware costs. It was apparent that the pay, allowances, and overtime for people represented the biggest category of dollar resource expenditures in this program. This was evidenced by an increase of about 240 ADP personnel for FY 1972, while AMC's overall strength continued downward. The result was a rise in the ratio of ADP personnel to total AMC strength from one in 22 last year (FY 1971) to one in 21 this year, an increase of more than four percent.

(U) The ALPHA, SPEEDEX, TEAM-UP systems made up the major portion of the ADP budget for the AMC complex. ALPHA - the AMC Logistics Program Hardcore Automated system was the standard system for the commodity command at the NICP level.[4] The system included the major supply processes of provisioning, cataloging, stock control, supply management, procurement and production, PEMA and stock fund financial management.

(U) SPEEDEX - the Special Project for Electronic Equipment at Depots Extended system was an integral part of the overall AMC standard ADP system for the depot level. The hardcore applications were materiel order processing, storage management, and installation management.

(U) TEAM-UP - the Test, Evaluation, Analysis, Management Uniformity Plan system was part of the AMC substandardization program for the Test and Evaluation Command, also the subordinate installations and activities. It covered installation management as well as scientific and engineering applications.

(U) During the review of the Automatic Data Processing (ADP) operations on 10 December 1971, AMC analysts concluded that the command's effectiveness in its ADP operations was generally comparable with DOD and private industry experience. With the implementation of ALPHA, SPEEDEX, and TEAM-UP, the efficiency of the ADP operations will greatly improve. It was also noted that existing policy and guidance did not provide the realistic and consistent reporting of non-operating computer time that was either available for sharing or unavailable

---

[3]CAMERA No. 10-72, Subject: Review of Automatic Data Processing (ADP) Operations.

[4]Letter, CAAA-HLP, dated 30 Dec 1971, to CG, AMC; Subject: Cost/Benefit Study for the ALPHA, SPEEDEX and TEAM-UP.

because it was reserved for workload contingencies, mobilization requirements, or other causes. Furthermore, there was a communications gap at managerial levels due to limited interchanges of information on unused computer capability, and on operational costs. Evidently, a cold, hard look was needed at the quality and usefulness of what AMC's computers were producing; at the costs of the products produced; and at the user awareness of these costs. Concurrently, it was advised to consider the savings potential of transferring to computers some of the statistical calculations being performed manually at all headquarters in AMC.

(U) To counter and ameliorate the situation, it was recommended that ADP cost controls and the reporting of operational cost data to AMC's managerial levels should be augmented and improved. These improvements were to provide clearer definitions of ADP costs, auditability of actual costs, and ADP product costing. A structure of charges and discounts would be devised which would discourage unnecessary use of costly computer operations and promote utilization during normally slow or idle periods. It was indicated that the Directorate for Management Information Systems (DMIS) had been testing some of these concepts on scientific and technical applications. DMIS, also, was urged to develop and issue standards or guidance to the field on allocating non-operating computer time for sharing, for workload contingencies, mobilization reserve, or other purposes.

(U) In order to provide managers with more detailed and definitive information on product costs, manpower utilization and equipment utilization, ADP performance indicators and targets, and related reporting should be augmented and improved. Another recommendation was that of providing commanders with independent evaluations of ADP costs, performance and management effectiveness. It was believed that successful implementation of these recommendations would enable AMC to substantially reduce ADP costs and improve the effectiveness of its operations.

AMC Logistics Program Hardcore Automated (ALPHA)

(U) The AMC Logistics Program Hardcore Automated (ALPHA) was the standard ADP system intended for use in all the commodity commands. Now being developed at the US Army Aviations Systems Command (AVSCOM) in St. Louis, Missouri, ALPHA will replace the variety of systems in use at the various subordinate commands.

(U) During FY 1972, all of the remaining portions (phases "C" and "D") of the basic ALPHA system comprising the major mission applications of supply management; procurement and production; and stock fund and stock control were implemented.

(U) Although performance was not adequate due to excessive run times, a concept for replacing the current cycle method of operations by application processing was developed. This satisfied functional requirements, and because of the greater potential for multi-programming, reduced processing time and increased processing frequency.

(U) The implementation culminated four years of ADP design and development effort toward a standard AMC logistics ADP system. It was a significant milestone toward overall standardization of AMC operations at the major subordinate commands. As of 30 June 1972, the ALPHA system was still in prototype shakedown operations with extensive efforts being made to optimize the total system.

AMC Laboratory Plan

(U) On 8 December 1971, the Chief of DAR&D forwarded to AMC a summary version of the AMC Laboratory Plan[5] approved by the Assistant Secretary of the Army (R&D). The plan was referred to as the approved R&D planning basis for improving the overall quality and effectiveness of the AMC laboratory structure through 1976.

(U) AMC had been functioning with two types of laboratories, corporate and commodity oriented.[6] The corporate laboratories reported directly to Headquarters, AMC, and concerned themselves with technology that crossed commodity lines. Commodity commands laboratories were concerned with the technology of their command's weapons system.

(U) To assist the subordinate Materiel Systems Commands (MSCs) in carrying out their functions, the commander of an MSC was to maintain research and exploratory development activities unique to his needs. Subsystems that could not be developed in his command were to be subcontracted with other AMC activities.

(U) Technical areas that pervade the systems area responsibilities of several major subordinate commands, such as electronics, were to be assigned to the AMC corporate laboratory complex which reported to the CG, AMC, with operational control vested in his Deputy for Laboratories. Corporate laboratories had no materiel engineering or procurement functions, but they assured a technological base in support of them. The aim of the corporate laboratories was to enhance AMC's broad base of technological competence and capability; and to minimize undesirable duplication with laboratories of the MSC's.

---

[5]Letter, DARD-ARR, dated 8 Dec 71 to AMC; Subject: AMC Laboratory Plan.

[6]Gen Miley's speech at Command and General Staff College, 1 February 1972.

(U) The lead laboratory concept was to be continued. In this concept, the director of a lead laboratory was the field manager of a particular technological or technical area throughout AMC.

(U) The Army Materiel Command's technical competence and capability to translate technology into military hardware resided in a number of diverse and geographically separated localities. As a result of the evolution of AMC to its current structure, many of these technical centers, while performing complementary work, were separated organizationally. While in some cases desirable, geographical movement of these competent technical cells, except over an extended period of time, was not only impractical but, also, probably unachievable without great disruption and potential loss of technical competence. Consequently, changes in organization were to be accomplished in an evolutionary way over a period of time.

(U) The anticipated changes included the new AMC policy for the Materiel Systems Command Laboratoies. This new approach envisioned a single integrated technical community with one leader at each MSC. Each group would be given resources and authority within the clearly defined logical systems oriented area of responsibility. Collocation with the major subordinate commands will be achieved wherever superior organization results.

(U) The several MSC mission changes were to be scheduled with a view to effecting them within five years. In consonance with long range thinking on the future character of the MSC's, and to the extent possible, the major subordinate command laboratories will be organized on a systems orientation rather than commodity orientation basis.

(U) In order to provide full systems integration within the MSC's laboratories, each of the commands will develop a laboratory component capable of developing, engineering, and providing production packages for the electronic systems which will become an integral part of their major weapons systems. They will get some of their technical support, components, sub-systems, and concepts from the electronics technology capability within the corporate laboratory complex. As electronics systems capabilities develop within the MSC's, the counterparts existing in the Electronics Command will be phased down. As this is accomplished, the Electronics Command will become the Communications Systems Command and will have life cycle responsibility for communications, electronic warfare and ADP systems.

(U) Research and development in aircraft missiles, guns/rockets, and avionics will be performed on subcontract by the Missiles Systems, Armament Systems, and Communications Systems Commands, respectively. Planning will be accomplished by the subcontracting MSCs in coordination

with AVSCOM. Programs will be mutually coordinated and approved by the responsible systems command prior to submission to Headquarters, AMC.

(U) Research and development in ground vehicle mounted missiles, guns/rockets, and communications will be performed on subcontract by the Missile Systems, Armament Systems, and Communications System Commands, respectively. Planning will be accomplished by the subcontracting MSC in coordination with the Tank-Automotive Command. Again, programs will be mutually coordinated and approved by the responsible systems command prior to submission to Headquarters, AMC.

(U) Consideration will be given to transferring several ground mobility-like functions laboratory to TACOM. Also, consideration will be given to the formation of an Armament Systems Command (ARSCOM) from appropriate elements throughout AMC. The results from creating one organization responsible for the complete system approach for conventional weapons, both launcher and the ammunition, were promising. Sophistication in conventional weapons and the proof, over the last two decades, of the worth of systems engineering suggests a strong payoff in operating efficiency and accelerated technical development.

(U) To provide life cycle management of those items required which support the individual soldier, consideration will be given to organizing a Troop Support Command (TROSCOM). The exact mission, functions, and composition of this study were under consideration.

(U) Corporate Laboratory Complex. As appropriate, existing laboratories will be further collocated administratively to achieve enhanced coupling of related major research areas. The Aberdeen Research and Development Center (ARDC) will be dissolved and the parts thereof will become elements of the AMC Corporate Laboratory Complex.

(U) While no longer a part of the corporate laboratory complex, Army Materiel Systems Analysis Agency (AMSAA) will continue to reside with and get technical support from the elements of that complex at its present site of Aberdeen, Maryland. It will report directly to the CG, AMC. The Harry Diamond Laboratory, an important corporate laboratory, will move to a 138-acre site. This relocation will be accomplished in three phases, and will be completed in 1975.

(U) The AMC laboratory plan also included the phasing out of the Biological Defense Research Laboratory at Fort Detrick, Maryland. Three of its functions were transferred as follows: the warning and physical protection functions were transferred to Edgewood Arsenal; the vulnerability assessment function was transferred to Deseret Test Center; and the medical protection function to the US Army Medical Institute of Infectious Diseases, an element of the Army Medical Department.

(U) Consideration was being given to the formation of an Electronics Technology Laboratory which could be organized from several electronic technology elements of AMC. This laboratory would provide a strong electronics technology capability to support the needs of all systems command and systems development laboratories of AMC.

AMC Maroun System

Background

(U) In accordance with CSM 69-490, 17 November 1969, an OMA Study called the "Currier Study" was conducted which developed static and variable cost factors for Program IV and Base Operations at the program and major command level. Its concept was that the number of Army man-years was the basic determinant and key variable of the amount of OMA required to support a given force.[7]

(U) On 12 June 1970, the Vice Chief of Staff, US Army, directed the Comptroller of the Army (COA) to review Operation and Maintenance, Army (OMA) base operations support of continental Army Command (CONARC) installations. Major General Autrey J. Maroun was designated as a special Assistant to the COA for the purpose of directing the study. The objectives were to identify high variance installations; the reasons for the variance; and to establish methods of relating base operations funding requirements with measures of installation output. On 25 March 1971, the Chief of Staff, US Army, approved the finding of the study, and directed that the analysis be continued and extended worldwide to both mission and base operations OMA costs.

(U) AMC was requested in May 1971 to proceed with a study designed to accomplish the tasks directed by the Chief of Staff. Data collection was started on 1 July 1971 with completion scheduled for 15 August 1971. However, due to the difficulty of collecting historical data beginning with Fiscal Year 1965, an extension to 1 September 1971 was granted. Data verification, normalization, and correction required six weeks, to 15 October 1971. Initially, priority effort was directed to base operations: five program elements in program 75; and all of program 7M. The 7S accounts included Supply Depot Operations; Supply Management Operations; Central Procurement Activities; Second Destination Transportation; and Industrial Preparedness Operations. Funds under these accounts represented 82 percent, or $1.4 billion of AMC's Fiscal Year 1971 OMA funding.

---

[7]Material for this section was taken mainly from Phases I and II Reports of the AMC Maroun System, dated 15 December 1971 and 30 April 1972, respectively.

Scope

(U) The AMC Maroun study effort covered all Operations and Maintenance, Army (OMA) and comparable Army Industrial Funded resources with corresponding workload that were related to functions as defined in the Army Management Structure, AR 37-100 series. Because they received AMC OMA funds and manpower spaces, 87 elements, including major subordinate commands, depots, installations, sub-installations and activities were included in this study. Also included were the Army Industrial Fund activities which were financed by the OMA appropriation.

Objectives

(U) There were three primary objectives of the Maroun System: Develop cost factors that related quantified measures of mission output to recurring operating costs in base-line force; identify significant cost trends in OMA during Fiscal Years 1965-1971; and isolate variances among activities and document reasons. Secondary objectives included the employment of a "Zero Based Budget" concept with AMC Staff development and provided more balanced programs and resource distribution to AMC field elements.

Discussion

(U) Following Phase I, which was completed in mid-December 1971, analyses and correlations were extended during Phase II to all OMA program element and program element activity accounts.

(U) As previously indicated, OMA expense, workforce and workload data were collected for fiscal years 1965 through 1971 from 87 subordinate AMC commands and activities. Except for Base Operations, data were not collected and analyzed for installations subordinate to AMC's major subordinate commands. Data for these activities in the mission were added to the analysis in the follow-on effort to Phase II. Although considerable work was done during Phase I to correct and validate data, it should be noted that specific program element expenses or data totals may vary in this report when compared to other reports due to changes of funding or data as the study progressed.

(U) Phased Analysis of OMA Accounts. As prescribed in DA letter of 14 March 1972,[8] the Maroun System analysis was done on a phased basis within available resources. In the Phase II report, a complete review of the OMA program elements was made to determine the feasibility

[8]TAG letter, DAAG-PAP-A(M), 14 Mar 72, subject: Command Analysis of OMA funding, RCS CSCAB-306.

of using complete engineering releases (CERs) based on available workload data. Also where CERs were not acceptable, attempts were made at sub-program element level to determine if CERs were feasible at that level, such as in the case of Central Procurement Activities.

(U) At the outset of this effort, DA guidelines were to keep the CERs simple and use one workload factor at program element level. Accordingly, data from FY 1965 through FY 1971 were collected from field elements on that basis. The shift to below program element level CERs, as prescribed in above referenced DA letter, caused considerable additional work in field resubmissions of more detailed data and in the analysis of such data. This unexpected workload deferred certain lower priority aspects of the Maroun System analysis.

(U) Expense Analysis. One of the most difficult aspects of the analysis was normalizing expense data. Normalization efforts included attempts to isolate and explain one-time or non-recurring expenses, changes in the account structure, new, discontinued or transferred activities, and other actions that could adversely affect data comparability. Since there were no formal accounting records that could be used to facilitate data normalization, most of the information had to be obtained by direct contact with installation personnel. The validity of the data base improved as normalization efforts continued.

(U) AMC used the DA prescribed inflation factor for Element of Expense (EOE) contracts. It was intended to continue to use the DA factor for both the command unique AIF and non-AIF subdivisions of this EOE. There was no requirement, therefore, for AMC to submit on 15 May 1972 recommended inflation factors to DA for command unique EOEs.

(U) The DA directive on the Command analysis of OMA funding indicated that inflation factors for the period FY 1965 to the current fiscal year will be provided by DA each year by 15 August. Programs used for applying the DA factors for FY 1965-1972 during Phases I and II were available in FORTRAN II at the Harry Diamond Laboratories (HDL). The HDL computer support was used as an expedient during Phases I and II. A permanent ADP facility was sought to support the on-going Maroun System.

(U) The OMA reimbursable program in AMC was significant. Because of this, total recurring expenses were used in most cases for conducting cost analyses. Since workload and element of expense data were not maintained separately on a direct and reimbursable basis, breakouts of expense and workload data by direct, funded reimbursements, and automatic reimbursements were done on the basis of a pro rata

245-082 O - 77 - 3

calculated percentage prior to inflation. The breakouts for reimbursements were made at the command level for each program element or subaccount.

(U) Where data did not permit an acceptable correlation/regression analysis for a function, costs for that function were considered level of effort or static. The most current financed operating program was used for the AMC Cost Factor Handbook. Alternative methods of analysis were tried prior to concluding that there was not a valid correlation between output and costs, and that the current financed program was the most appropriate figure to use in the Cost Handbook. These alternative methods included simple averaging of unit costs and regressions of data points for expenses and workloads for FY 1965-1971 for all AMC installations/activities.

(U) AMC level equations for PE/PEAA accounts were developed using the two methods prescribed by DA. The recommended approach provided for using the static costs, the variable costs and workloads for all AMC installations and activities. The command level variable cost factor was then computed by dividing the total variable costs by the total workload. This resulted in a weighted command level equation rather than an equation representing the average of the installations. The alternative method of developing command level factors was to calculate a total cost (or manpower) estimating relationship using total workload and expenses independently of installations' equations.

(U) Workload Analysis. Workload data were reported against performance factors prescribed in the Army Management Structure. The validity of these work units or output measures was tested in several ways based on DA guidance. It was determined first whether the work unit logically related to the application of resources in the functional activity. Correlation/regression analysis was then used to determine how much of a change in resources was accounted for by a change in the measure of work, and how much confidence should be placed in estimates using the workload as a predictor. Where correlation statistics failed to validate the work unit, trend analyses were conducted or alternative work units were selected and tested. Where practical, a workload range was developed for each function at each installation and activity. Minimum economic operating levels were based upon judgment as to the highest acceptable unit cost for each activity within a program element. Maximum economic workload capacities were based on a 40-hour single shift work week considering limitations such as facilities available to accommodate work, physical movement limitations, and maximum output of machinery. No manpower or funding constraints were imposed when developing maximum workload capacities. The criteria followed by AMC in identifying maximum workload capacities

differed to some extent from the final DA guidance which indicated that maximum capacities should be based on the planned use of the physical facilities which would not necessarily be the same as the maximum capacity. It was not believed that this difference significantly affected the outcome of the analyses. It was, however, an area that would require further investigation in the follow-on Phase II effort.

(U) Army Industrial Fund (AIF). A significant portion of AMC's operations are currently financed by AIF (26 percent of AMC's total OMA expenses in FY 1971). Expenses incurred by OMA as a customer of the AIF were included in the AMC Maroun Study. For example, most depot level maintenance was performed in AIF-financed shops. The dollars required to purchase these services and other were budgeted for on a direct basis in OMA under EOE 250 (Purchased Services - AIF). Work performed by AIF-financed activities for other than OMA-financed AMC customers was not included in the study. The AIF was planned to be extended to cover total depot operations beginning 1 July 1973 (FY 1974). When this occurred, budgeting, funding, and workloading for central supply activities were done on the same basis as they were done for depot maintenance. With the extension of the AIF, OMA no longer initially financed Base Operations at the depots. These Base Operations expenses at depots totaling about $150 million would no longer appear under Z accounts but would be charged to mission accounts. Charges to the SP 720000 mission accounts would increase, therefore, from what they were since AIF billings against these accounts would include a proportionate share of Base Operations (G&A). The extension of the AIF to all depot operations would require major revisions to the base depot data and to the cost estimating relationships for program elements such as supply depot operations, Base Operations and Property Disposal.

(U) Military Manpower. Military personnel costs and man-years were not included in the Phase II analysis. Total projected FY 1972 military end strength for AMC was 12,855. Of this total, 6,000 plus military personnel were assigned to OMA-financed activities. Most of these were assigned to non-workloaded account areas. Because of this, military personnel in AMC had little or no effect on cost, manpower or workload estimating relationships.

(U) ADP Support. The scope of the Maroun System was so large that it required extensive use of automated systems and equipment. Successfully implementing the system within AMC was dependent, therefore, upon adequate ADP support. Examples of this support were: development and maintenance of a large data base; application of the inflation programs; and development of cost and manpower estimating relationships. In commenting on drafts of the DA Maroun Directive,

AMC indicated that since the Maroun System was Army-wide in scope, the ADP support should have been an Army-wide effort. The referenced DA Maroun directive showed that each command and agency would identify its ADP requirements and process them in accordance with AR 18-1. Also, the DA directive indicated that ADP support requirements would have to have been absorbed within existing resources. Numerous high-priority and competing demands were already placed upon AMC's limited ADP resources. Carrying on from Phase I, the Harry Diamond Laboratories (HDL) continued to provide ADP support during Phase II. It was recognized from the outset that HDL would provide only temporary support. HDL was in a position, however, to provide quick turn around support for the study effort. Plans were underway to select a permanent ADP support facility. Since the Major Item Data Agency (MIDA) either funds or workloads a major portion of depot resources, efforts were being made to utilize current ADP programs at that installation in support of the Maroun System and avoid duplication of effort.

(U) Major Item Data Agency. AMC's MIDA, located at Chambersburg, Pennsylvania, was expected to assume major responsibilities for implementing the Maroun System in addition to the ADP support requirements discussed above. Detailed plans were worked out based on the following considerations:

MIDA centrally workloaded and funded most of the depot maintenance (P7M) activities. In P7S, MIDA workloaded supply depot operations, second destination transportation, and property disposal activities. An installation breakout and analyses of the bulk funding provided MIDA were essential elements of the Maroun System.

MIDA's responsibilities were expected to fall in three general areas: maintaining necessary data for all accounts and activities cited above; conducting analyses to assist MIDA in carrying out its programming/budgeting/resource management responsibilities in specified account areas; and providng HQ, AMC with raw data and results of MIDA analyses to assist resource managers in conducting installation and command-level analyses.

(U) Summary and Conclusions. Implementation of the Maroun System was supported at all AMC organizational levels to the extent that resources were available. A considerable amount of work remained to be done before the system became operational. While good progress was made during Phases I and II in functional areas such as Supply Depot Operations, Base Operations, and others, much more data validation was needed in some areas. Available resources were concentrated on implementing accounts that had the greatest pay-off. The approach followed by AMC to explore simultaneously all OMA functional areas made possible the identification of the pay-off accounts.

(U) Many problems were encountered in correlating, validating, and normalizing the data base. These resulted from the almost total absence of any formal or informal records to isolate one-time or non-recurring costs; numerous changes in the account structure within and between fiscal years; inconsistencies in budgeting and accounting for the same function by different installations/activities; and the lack of emphasis in prior years on accurately accumulating and reporting workload data. It was expected that the validity of the data base would improve with time and by continuing normalization efforts.

(U) The Maroun System required extensive use of automated systems and equipment, consequently successfully implementing the system within AMC was dependent upon adequate ADP support. Use of the Maroun techniques were to be tested and used at HQ, AMC and at field activities in financial efforts such as budget execution review, and the command operating budget. Regression analysis was the primary technique used to identify the cost factors for each installation. It was also concluded that planned actions for extending the Army Industrial Fund to cover the total depot would materially change complete engineering releases (CERs) in FY 1974 for certain 7S program elements. There was a potential for developing usable CERs covering about $1.6 billion or 88 percent of total OMA funding within AMC.

Command Analysis of OMA Funding[9]

(U) A Resources Analysis Group, Financial Resources Management Branch, was formed on 1 May 1972 to provide for the orderly implementation of the ongoing Command Analysis of OMA Funding (formerly known as Maroun). The work done by the Ad Hoc Group in Phase I and II was assimilated, validated, automated, and updated. Work continued on schedule.

Studies, Plans and Programs

(U) Other studies, plans, and analyses pertaining to organizational and functional objectives of the entire command were conducted by the personnel of the Plans and Analysis Directorate. The Planning Guidance for FY 1974-1978 provided the subordinate elements of the command the latest information on the long range resources expected to be available. This document was published in April 1972, and changed as later information became available from the Department of the Army. With this document, AMC staff elements and commands were able to look ahead to determine what impact the projected resources would have on their future mission. Directly related to this was the Optimum Materiel Command Plan.

[9]Annual Report of the Comptroller, US Army Materiel Command, FY 1972, p. 19.

The Optimum Army Materiel Command (TOAMAC)

(U) Initiated in FY 1971, the optimum AMC configuration was developed within the TOAMAC plan. It envisaged a realignment of the command structure of AMC, and a consolidation and elimination of duplication of missions to obtain increased efficiency.

(U) A year-long effort resulted in the refinement of the Optimum Plan for the organization of AMC. Rather than executing across-the-board cuts to reach directed manning levels which would have provided an unbalanced structure, the TOAMAC plan was developed to provide the best organization with which to carry out AMC's mission under continuing resource constraints.

(U) The finalized TOAMAC plan was briefed to the Command Group on 29 June 1972, and subsequently forwarded to DA for approval. Final execution would require DOD approval and possible Congressional notification. Approval of this action would allow AMC to reorganize in a manner that assured continued outstanding mission performance within a framework of reduced resources.

(U) Specifically, the plan required the consolidation of the Munitions Command, including the Ammunition Procurement Supply Agency, and the Weapons Command into a single command. It would be designated Armaments Command and located at Rock Island, Illinois.[10] Included in the merged command would be the missions and functions of the Small Arms Systems Agency which would be disestablished at its current location, Aberdeen Proving Ground, Maryland.

(U) To eliminate the present geographical dispersion of major ECOM organizations, the plan made provisions to consolidate elements of the Electronics Command headquarters, located at Fort Monmouth, New Jersey. Also, the consolidation would improve day-to-day coordination, management efficiency, and provide substantial manpower savings.

(U) Under the plan, the Mobility Equipment Command in St. Louis would be converted and redesignated the Troop Support Command. It would be dedicated primarily to improving the personal equipment and environment of the individual soldier. Initially, Natick Laboratories and other personnel equipment related activities would be assigned to this command. Later, responsibilities for materiel handling equipment, construction equipment, and industrial engineering would be transferred to the Tank-Automotive Command in Detroit, Michigan.

---

[10] AMC News, dated 11 January 1973

(U) Also contemplated was the realignment of the Army depot system which would reflect managerial improvement and reduction in workload. These actions would result in a change in mission and a force reduction of the Atlanta Army Depot; the disestablishment of Umatilla Depot, Oregon, as a depot and its establishment as an activity under command of Tooele Army Depot. Reduced level of activity will affect four Army Depots: Sierra, Seneca, Savanna, and Pueblo.

(U) In addition to the organizational and management benefits derived from the TOAMAC plan, significant personnel and dollar savings will accrue. In FY 1973, civilian personnel savings will amount to 1,601, and 4,728 in FY 1974. The total personnel savings during the FY 1973-FY 1976 period will total 11,047. In monetary value, the savings amount to $1.58 million for FY 1973, and will increase to $141 million from FY 1978 on.

Standard Integrated Support Management System (SISMS)

(U) On 15 December 1970, the Commanding General, AMC, entered into an agreement with the Commanders of the Naval Materiel Command, Air Force Logistics Command, and Air Force Systems Command, to adopt the Standard Integrated Support Management System (SISMS) concept as a management principle.[11] The participants agreed to achieve the maximum practicable implementation of SISMS, and to utilize the SISMS procedures for multiservice aeronautical systems.

(U) SISMS was a consolidation of 21 in-service Joint Operating Agreements and related contract and data requirements providing standard policies and procedures for use in management of multi-service systems. It incorporated the concept of single service management through the application of Integrated Weapons Support Management (IWSM). SISMS delineated management responsibilities of executive and participating services, and provided methodology, directly or by reference, in all disciplines required to assure system support throughout the life cycle.

(U) In a year, progress was made within AMC in compliance with the Logistics Commanders' agreement. Specifically, this included the establishment of a focal point organization within AMC, minor revision to regulations and directives, and application of SISMS procedures to aeronautical programs on a selected basis. Although significant, these accomplishments represented only the beginning of the overall AMC effort expected in the application of SISMS.

---

[11] LTR, AMCRP, dated 17 January 1972, subject: Standard Support Management System (SISMS), signed by General Henry A. Miley.

(U) In the future, SISMS will be utilized on all new weapon systems whether single or multiservice in application. This will require the incorporation of SISMS procedures and requirements into AMC directives and regulations; designing of ALPHA to accept the machine sensible portions of SISMS; acceptance of the organizational responsibilities specified in SISMS into the AMC organizational structure; and a concerted effort by all to utilize the contract exhibits and data item description of SISMS to the maximum possible extent consistent with valid requirements.

(U) The Director of Requirements and Procurement was designated as SISMS staff Director, and was charged with the task of providing overall staff guidance and direction for the implementation of SISMS within AMC.

Study Programs

(U) Actions were taken to refine and perfect the system for managing the AMC study effort. It was previously established through improving the utility of completed studies by documentation and compre hensive analysis of study results and implementation actions. the disciplined approach required study requestors to not only define more clearly the requirements of the studies, but to clearly specify the intent to utilize study results and potential application within AMC and DA.

(U) Other efforts included the extension of visibility of the AMC Study Program to USACDC and DA Staff Agencies. These actions involved the development, review, publication and distribution of the AMC Study Program to the aforementioned offices. Specifically, it called for the coordination of proposed AMC RAC studies with DCSLOG prior to the submission of the AMC study program to DA. The coordination effected precluded undesirable duplication and "re-inventing the wheel."

(U) A comprehensive analysis and follow-up approach initiated in connection with planned, on-going and completed studies within AMC resulted in (1) better planning for future study effort; (2) "Flagging" of the nice-to-have categories of studies of questionable results and causing their cancellation or withdrawal; and (3) greater utilization of study results.

Proposed Changes to TASS

(U) During the second half of FY 1972, efforts were made to initiate actions to modify AR 5-5, the Army Study System (TASS). These proposed changes were presented through a series of meetings

with DA personnel; briefings to Coordinator of Army Studies personnel; the Working Group of the Army Study Advisory Committee; and through letters and fact sheets to the Assistant Vice Chief of Staff, Army, and to the Chief, Research and Development, Army, setting forth the requirements for the changes.

(U) Major changes proposed by the AMC covered (1) Composition of the Army Study Program; (2) Decentralization of the review, approval, and implementation of DA Staff Agency and Major Commands Study Programs to DA Staff Agencies and Major Commands; (3) Scope of the Army Study System to exclude Research and Exploratory Development, except where specifically required by DA on an exception basis; (4) DA review of DA Staff Agency and Major Commands Study Programs would be on an exception basis; (5) Contract study approval authority would be delegated to the Major Commands for studies of $100,000 or less, and that a Secretarial determination and findings would be used as the approval medium on studies costing over $100,000.

Planning Cycle

(U) The concept of operation for planning within AMC was refined and an AMC regulation outlining the scope, responsibility and elements within AMC were published, together with the Planning Guidance for the period FY 1973-1977. On the first day of this fiscal year, commodity commands responded to the AMCR of the Planning Guidance by submitting detailed implementing plans which addressed the accomplishment of assigned missions within resource constraints provided. Analysts performed a two-month detailed study of all the implementing plans in an attempt to provide the AMC Select Committee (SELCOM) findings which advised the Commanding General, AMC, of the potential capability for field elements to accomplish assigned missions in an environment of shrinking resources.

Cost Estimating for Major Acquisitions

(U) Realistic cost estimating is indispensable to decision-making during the process of acquiring a new weapon system. Past GAO reports showed that estimates of the cost to develop and produce a weapon system were frequently understated. This was evident from available data on 47 weapon systems which showed cost increases of $15.6 billions from early development estimates. DOD attributed 43 percent of this amount, or $6.7 billions, to estimating changes. GAO attempted to identify those factors in the cost-estimating function that were causing the problem and to offer suggestions as to how the problem might be solved or abated.[12]

[12]Inclosure 1, AMCCP-IA, subject: Major External Audit Reports Processed in AMC - 2d Half, CY 1972, dated 7 March 1973.

(U) In a final report issued to Congress on 24 July 1972, GAO included some of these findings and conclusions. It found that a uniform guidance on cost-estimating practices and procedures which would be the basis for formulating valid, consistent, and comparable estimates throughout the services was lacking. Each service issued its own guidance for the estimating function, which ranged from a detailed estimating manual to a few general statements. This guidance was often ignored by the estimators.

(U) The report indicated that cost estimates for a specific system frequently were a succession of revisions. For example, the current cost estimate was derived by refining and revising the preceding cost estimate. Accurate revision of both the original and updated cost estimates required documentation showing data sources, assumptions, methods, and decisions basic to the estimate. However, in virtually every system such information was inaccurate or was lacking. Consequently, certain difficulties became evident.

(U) Among these difficulties was that known costs had been excluded without adequate or valid justification. Also, historical cost data used as a basis for computing estimates were sometimes invalid, unreliable, or unrepresentative. Another finding was that readily retrievable cost data which could serve as a base for computing cost estimates for new weapon systems were generally lacking. Officials within OSD stated that there was little organized effort to gather systematically actual cost information to achieve comparability between the data collected on various weapon systems, or to make any effort to see whether the cost data the contractors reported were accurate and consistent. Overall, it was concluded that without realism and objectivity in the cost-estimating process, bias and overoptimism caused the estimates to be low.

(U) GAO recommended or suggested that the Secretary of Defense should develop and implement guidance for consistent and effective cost-estimating procedures and practices throughout DOD. In developing this guidance, he should consider the criteria for cost estimating set out in the report. Of particular importance were the provisions for an adequate data base of readily retrievable cost data, and the proper treatment of inflation. Included should be an effective, independent review of cost estimates, and judgment by the officials as to the realism of the cost estimates on which decisions are based. Also, the guidelines should call for more complete documentation of cost estimates, coupled with a requirement for an adequate feedback of results which would provide a basis for comparing costs achieved with those estimated.

(U) DOD agreed with GAO's conclusions and planned to provide the necessary guidance to the DOD components. This would include criteria to guide those charged with making estimates and would establish procedures to have cost estimates available for use by the Services and the Secretary of Defense. In addition, it would provide guidance necessary for the creation and maintenance of data systems for cost estimates.

(U) GAO was further advised that the Services had taken steps to improve their cost estimating capability. For example, the Department of the Army would appoint a project manager who would be responsible for the development of an independent estimate (based upon historical experience with prior similar systems) for each system covered by a Selected Acquisition Report (SAR) or subject to a Defense Systems Acquisition Review Council (DSARC) review.

CHAPTER II

RESOURCES AND RESOURCE MANAGEMENT

Funds

(U) Army Materiel Command operated, as usual, under a number of programing and funding authorities. The major ones were Procurement of Equipment and Missiles, Army (PEMA) program, Research, Development, Test and Evaluation (RDTE) program, Operation and Maintenance, Army (OMA) program, and the Army Stock Fund (ASF). Others included Army Industrial Fund (AIF), Military Assistance Program (MAP), Family Housing Management Account (FHMA), and the Military Construction, Army (MCA) program.

Funding Levels

(U) The total Army program received by Army Materiel Command in Fiscal Year 1972 amounted to $9.288 billion. The PEMA program ($4898.6 million) accounted for 52.7 percent of the total, and RDTE ($1461.2 million) accounted for 15.7 percent. OMA ($1826.9 million) at 19.7 percent, ASF ($986.1 million) at 10.6 percent, and Other programs ($115.2 million) accounted for the rest.

(U) In Fiscal Year 1972, increases in RDTE and OMA more than offset reductions in PEMA, ASF, and Other Army programs. The result was a two percent ($196.6 million) increase in the total Army program for Fiscal Year 1972 as compared with Fiscal Year 1971. As compared with the peak year of 1969, however, the AMC program for Fiscal Year 1972 was down by almost 40 percent (Table 1).[1]

Table 1
AMC's Total Army Program, 1965-1972
(In Millions of Dollars)

FY	Total	OMA	PEMA	RDTE	ASF	Other
65	7,533.0	1,111.0	3,625.0	1,625.0	892.0	284.0
66	14,155.6	1,491.6	8,563.0	1,664.5	2,125.9	220.6
67	14,418.7	1,615.1	8,795.7	1,679.7	2,165.7	162.5
68	15,274.5	1,826.3	10,025.5	1,242.3	2,031.9	148.5
69	15,378.5	1,880.7	10,103.8	1,262.3	1,974.8	156.9
70	11,430.9	1,846.6	6,969.5	1,167.5	1,305.2	142.1
71	9,091.4	1,703.5	4,980.0	1,225.7	1,045.7	136.5
72	9,288.0	1,826.9	4,898.6	1,461.2	986.1	115.2

1 Annual Rpt of the Compt, USAMC, FY 1972, n.d., p. 4.

(U) The impact within AMC of the buildup in Southeast Asia from 1965 to 1969, and the gradual American withdrawal thereafter was reflected in the distribution of AMC programs among its major subordinate commands. This distribution is shown in Table 2, below. Among other things, it reflects the merger of Headquarters AMC and SMC (Supply and Maintenance Command) at the beginning of Fiscal Year 1967; the explosive growth of the MECOM procurement program in 1966, and those of AVSCOM, ECOM, and MUCOM throughout the buildup; the generally declining levels of RDTE funding except in AVSCOM; and the bulge in Army Stock Fund activity.

Financial Management

(U) OMA. As in previous years, OMA resources were insufficient to meet all program requirements. Funds were available to undertake new or expanded initiatives such as SPEEDEX, pollution abatement, and Modern Volunteer Army project actions, but OMA funding did not permit AMC to make appreciable progress in solving such long-standing problems as care and preservation of backlogs of materiel in storage, reduction of BEMAR (Backlog of Essential Maintenance and Repair), and the upgrading of facilities and equipment.[2]

(U) During Fiscal Year 1972, AMC spearheaded the development of a DA-sponsored project aimed at analyzing operation and maintenance costs at subordinate commands and installations. The purpose of this project, known as the Maroun Study, was to determine the relationship between output and costs, based on historical data, with a view toward finding more efficient and economical methods of operation.

(U) In another effort at improved management, in the area of depot maintenance activities, an Overhead Rate Review Process was developed and implemented within Army Industrial Fund depots during this fiscal year.[3]

(U) PEMA. A significant change in the procurement appropriations structure was enacted during this fiscal year. The Congress established five separate appropriations for procurement, viz:[4]

Aircraft Procurement, Army
Missile Procurement, Army
Procurement of Weapons and Tracked Combat Vehicles, Army
Procurement of Ammunition, Army
Other Procurement, Army

---

2 Ibid., p. 17
3 Ibid., pp. 18, 20.
4 Ibid., p. 19

Table 2
PROGRAM DISTRIBUTION BY COMMAND[5]
(In Millions of Dollars)

COMMAND	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71	FY 72
HQ AMC	240.9	1367.6	1306.4	1291.2	1233.3	1190.0	1512.1
OMA	86.3	896.2	836.5	793.9	799.6	749.8	1078.3
PEMA	5.1	4.3	3.1	2.6	1.8	2.6	2.6
RDTE	143.2	124.7	120.0	141.5	123.8	133.0	131.2
ASF	0.0	321.5	332.3	337.9	293.9	290.5	276.1
Other	6.3	20.9	14.5	16.3	14.2	14.1	23.9
TACOM	1509.7	1572.2	1531.1	1304.2	1271.8	1062.4	848.2
OMA	76.2	80.5	104.2	109.4	114.4	87.6	95.8
PEMA	954.7	938.4	1010.6	779.9	850.7	704.9	491.1
RDTE	74.7	65.8	72.8	71.3	56.4	65.4	81.8
ASF	402.2	486.0	341.2	341.6	248.7	203.1	178.5
Other	1.9	1.5	2.3	2.0	1.6	1.4	1.0
MECOM	4088.7	1018.6	773.6	641.8	535.1	297.9	320.0
OMA	253.2	91.6	68.8	74.6	77.1	63.2	67.4
PEMA	2718.8	735.0	526.9	403.3	362.3	161.0	179.1
RDTE	181.0	45.9	86.5	94.0	52.7	48.9	59.0
ASF	932.5	145.3	90.2	51.0	38.5	22.4	13.4
Other	3.2	0.8	1.2	18.9	4.5	2.4	1.1
AVSCOM	1727.2	1818.8	2219.9	2003.5	1314.5	1039.0	769.6
OMA	91.3	119.0	309.1	407.2	379.1	346.6	91.7
PEMA	1165.6	1200.6	1297.7	935.1	565.8	330.2	213.2
RDTE	66.1	81.7	89.8	89.0	75.8	144.8	281.7
ASF	403.9	417.4	523.0	572.0	293.6	217.0	182.4
Other	0.3	0.1	0.3	0.2	0.2	0.4	.6
MICOM	1590.2	1505.2	1063.3	1163.3	954.4	877.8	981.1
OMA	95.9	113.4	153.4	135.8	128.5	105.9	105.5
PEMA	639.1	602.4	606.7	746.5	550.8	474.5	562.4
RDTE	707.9	698.3	211.0	203.5	212.3	250.2	260.9
ASF	144.5	89.0	90.8	76.0	61.4	45.6	50.7
Other	2.8	2.1	1.8	1.5	1.5	1.6	1.6
WECOM	1028.7	1174.8	1081.8	980.1	618.7	570.6	522.1
OMA	62.8	62.6	77.7	74.2	81.6	80.0	87.5
PEMA	712.8	742.4	648.6	628.8	418.3	393.6	291.4
RDTE	73.3	82.3	77.4	72.2	39.1	36.5	57.0
ASF	178.3	286.3	277.1	203.7	78.5	59.4	84.8
Other	1.5	1.2	1.0	1.2	1.2	1.1	1.4
ECOM	1595.7	1656.0	1522.2	1821.7	1235.9	942.8	885.5
OMA	111.2	113.7	134.8	135.7	139.2	129.2	136.0
PEMA	940.7	1054.9	930.4	1206.4	705.6	509.5	403.4
RDTE	214.6	205.2	230.0	234.2	253.5	217.2	264.2
ASF	326.3	278.8	223.2	242.0	134.0	83.7	78.9
Other	2.9	3.4	3.8	3.4	3.6	3.2	3.0

[5] Ibid. pp. 5-6.

Table 2, Continued

COMMAND	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71	FY 72
MUCOM	3296.0	3513.9	5003.7	5109.3	3481.2	2505.9	2746.4
OMA	113.6	125.8	130.4	135.6	132.5	124.5	137.8
PEMA	3030.9	3231.3	4738.1	4835.1	3212.4	2280.2	2478.6
RDTE	139.7	147.7	123.7	126.8	119.1	92.8	114.3
ASF	8.2	6.5	8.6	8.2	14.1	5.8	14.0
Other	3.6	2.6	2.9	3.6	3.1	2.6	1.7
TECOM	260.3	272.9	254.6	259.4	263.0	255.7	253.5
OMA	19.1	11.2	11.4	11.8	12.7	12.4	11.5
PEMA	2.2	1.5	2.2	2.3	2.6	1.0	1.5
RDTE	188.2	198.8	194.2	207.2	213.1	209.8	209.0
ASF	46.2	57.2	44.0	34.3	31.5	29.3	27.2
Other	4.6	4.2	2.8	3.8	3.1	3.2	4.3
SAFLOG	0.0	0.0	0.0	3.1	3.2	4.3	10.7
OMA				3.1	3.2	4.3	10.7
PEMA				0.0	0.0	0.0	0.0
RDTE				0.0	0.0	0.0	0.0
ASF				0.0	0.0	0.0	0.0
Other				0.0	0.C	0.0	0.0

(U) AIF. During this fiscal year, AMC operated the following installations and activities under the Army Industrial Fund (AIF) system: one subordinate command, eight weapons facilities, 15 depot maintenance activities, and five research and development facilities. The AIF operating program totalled $1.2 billion, and it involved approximately 46 percent of all AMC personnel. Based on preliminary reports from the installations, AMC's AIF operations approached the desired goal of no operating loss and zero net gain. An operating gain of $292,000 for Fiscal Year 1972 represented an infinitesimal percentage gain of .02 percent to total AIF revenue for the year.[6]

(U) Simplification of the complex industrial fund budget system was pursued on two fronts, that which could be accomplished within the Command and that which required action at a higher (DA and/or OSD level. One example of AMC action in this area was the publication of a manual which drew together for the first time the various OMB, OSD, DA, and AMC instructions pertaining to preparation and review of the AIF budget. Another was a proposal submitted to DA in June 1972 which would, if adopted, reduce the size of the AIF budget from more than 2,000 pages to approximately one-eighth as much.[7]

---

6 Ibid. p. 20.

7 (1) Ibid., p. 21; (2) see AIF Budget System Manual, 15 May 72.

Personnel

(U) The management of manpower resources within the Army Materiel Command during Fiscal Year 1972 offered the greatest challenge since the activation of the command in 1962. This challenge will become even greater in Fiscal Year 1973 and beyond as personnel and dollar resources continue to decline.

Force Development

(U) Initial guidance from Department of the Army (DA) in June 1971 provided for a reduction in AMC's authorized civilian spaces during Fiscal Year 1972 from 132,439 to 128,298. Then in January 1972, the Command was informed of further reductions based on budget considerations and the President's desire to reduce Federal employment. The result was a revised civilian authorization of 124,727 for AMC by the end of the fiscal year, including 5,366 temporary part-time (TPT) spaces.[8]

(U) Actual civilian strength was reduced from 127,730 at the end of Fiscal Year 1971 to 124,020 at the end of Fiscal Year 1972 (Figure 1).[9] AMC absorbed these reductions by implementing base and activity closures and consolidations, by attrition, and by early retirements and the release of temporary employees.

(U) The military authorization for AMC declined from 14,106 to 12,354 spaces during this fiscal year. These reductions derived from the worldwide logistical establishment reduction (1,000 spaces), the worldwide RDTE reduction (597 spaces), and various project manager, laboratory, SAFEGUARD, and other adjustments (155 spaces).

Figure 1

ACTUAL AMC CIVILIAN STRENGTH[10]

(Excluding Exempt Summer Hires)

	Subject to Ceiling		Project Reflex	
	Jun 71	Jun 72	Jun 71	Jun 72
Headquarters AMC	2,234	2,192		
Major Sub Cmds	71,525	69,635	4,678	4,739
Depots	43,158	41,550		
Project Mgrs	850	754		
Research Labs	4,204	3,287	1,463	1,562
Procurement Agcys	410	190		
Log Control Actvs	2,249	2,194		
Cmd Mgt Actvs	1,770	1,805		
Training Actvs	664	633		
IG Field Ofcs	42	23		
Log Assistance Ofcs	48	55		
AMC Interns*	--	1,074		
All others	576	628		
	127,730	124,020	6,141	6,336

8 Exclusive of 6,111 REFLEX spaces.

9 Exclusive of 6,336 spaces under Project REFLEX as of the end of FY 72

10 Source: App B to Chapter 1, Annual Historical Summary, D/PT&FD, FY 72

*AMC Interns established 1 Jul 71

245-082 O - 77 - 4

(U) In March 1971, DA provided advance notification of a one-year trial under which civilian employment ceilings would be eliminated. It meant that dollars would control manpower and field activities would have greater flexibility, and in July 1971, the new program was implemented in AMC.[11] This trial program was short-lived, however, for on 15 August the President announced a five percent reduction in Federal employment. Since the primary proviso of the new trial procedure was the granting to AMC field activities the authority to hire up to four percent above their end-strength authorization, subject to availability of funds, this effectively cancelled the trial effort.[12]

(U) A new restriction on civilian employment was established in Fiscal Year 1972 when DA placed a ceiling on total AMC employment in the Washington area. This area is defined as the District of Columbia together with the two adjacent Maryland counties (Prince Georges and Montgomery) and the nearest four Virginia counties (Arlington, Fairfax, Loudoun and Prince William), together with the cities they embraced (Alexandria, Falls Church and Fairfax). The AMC ceiling was ultimately established at 2,860, excluding Project REFLEX personnel who were exempt from the ceiling. Because of the large number of retirements that became effective in June 1972, no major reduction-in-force was required to meet this ceiling. Actual AMC strength in the metropolitan area as of 30 June 1972 was 2,811.[13]

(U) As part of an effort to get young, better-equipped people into AMC, LTG W. W. Vaughan, the Deputy Commander, directed in January 1971 that manpower spaces for the Career Intern Program be centralized so as to provide more efficient and consistent management of the Command's future managers. Accordingly, career intern spaces were withdrawn from AMC field activities and placed on one AMC Table of Distribution and Allowances (TDA) with a separate Unit Identification Code. Actual strength of the Career Intern Program at the end of this fiscal year was 1,074, with an additional 35 assigned to Project REFLEX laboratories.[14]

---

11 Ltr, AMCPT-SA, Dir/Personnel, Training and Force Development, AMC, to AMC Field Activities, 7 Jul 71, subj: Elimination of Employment Ceilings on a Trial Basis.

12 Annual Historical Summary, D/PT&FD, FY 1972, p. 5.

13 Ibid., p. 6.

14 Ibid., p. 7.

(U) By DOD direction and DA guidance, AMC initiated Project REFLEX on 1 July 1970 as a three-year pilot project for testing the use of fiscal controls alone, rather than both fiscal and manpower controls, in managing the operations of selected in-house RDTE laboratories. The second year of this three-year test was completed during Fiscal Year 1972. Actual Project REFLEX strength as of 30 June 1972 was 6,336, including 122 temporary summer hires and 35 career interns.[15]

(U) In June 1971, the Department of the Army delegated to the Commanding General, AMC, certain approval authority which impacted on The Army Authorization Documents System (TAADS) processing. This delegation included authority to organize, reorganize, and discontinue units as long as critical resource requirements were within AMC allocations. It was extended in October 1971, to include authority for AMC to organize new units to be located on non-AMC installations. This new authority was granted on a test program basis for one year, until 30 June 1972.[16]

(U) At the beginning of this fiscal year, AMC had 227 units, 18 of which were MTOE (Modification Table of Organization and Equipment). It ended the year with 210 units, including 13 MTOE.

(U) A major impact in the TAADS within AMC during Fiscal Year 1972 was the preparation of the initial mobilization TDA's for AMC units, an action directed by ACSFOR in April 1971.[17] By 30 June 1972, 177 MOB TDA submissions had been received, and the remaining 17 were due within the next two months.

(U) At the close of Fiscal Year 1972, planning was underway to place in operation the Vertical Army Authorization Documents System (VTAADS). This system grew out of a DA study conducted during 1971-1972 to seek ways to provide the Army with a single authorization system responsive to commanders and staffs at all echelons. It is not intended to replace TAADS, but rather to increase accuracy and responsiveness.[18]

---

15 Ibid. p. 8.

16 (1) Ltr, AMCPT-S, Dir/PT&FD, AMC, to HQ, ACSFOR, 15 Oct 71, subj: Transfer of Decision-Making Authority, (2) Ltr, DAFD-OTA-AC, DA ACSFOR, to CG, AMC, 26 Oct 71, subj: same.

17 Ltr, AGDA-A(m)(5 Apr 71) FOR OT AU, DA ACSFOR to Multiple Addressees, 1 Nov 71, subj: Mobilization Tables of Distribution and Allowances (MOB TDA)

18 Annual Historical Summary, D/PT&FD, FY 1972, p. 10.

(U) In Fiscal Year 1970, the DA Board of Inquiry, Army Logistics Systems, had documented the lack of an adequate rotational base within the CONUS for many career enlisted logistics personnel. The development of a rotation and training base for logistics personnel subsequently became a high priority program within the Department of the Army. In the fourth quarter of Fiscal Year 1971, DCSLOG asked AMC to establish 80 to 100 positions, MOS 76V (Equipment Storage Specialist) as a pilot program within AMC's military resources.[19] A review of the TDA's of all AMC depots revealed that there were no enlisted MOS 76V positions; however, there were 306 civilian positions in the nine general supply depots which encompassed the same functions (storage, warehousing, care and preservation, and packaging and crating) as MOS 76V. Of these, 64 were identified as applicable for conversion to military positions.

(U) Within AMC's Fiscal Year 1972 military resources, the MOS 76V pilot program has been supported by 31 enlisted spaces which were distributed to the nine AMC general supply depots.[20] In-house studies are being conducted to determine if additional enlisted spaces can be made available for this pilot program from other hard-core logistics functions.[21]

(U) In November 1969, ACSFOR promulgated the Chief of Staff, Army-directed program for increased use of TOE units in installation support roles because of austere funding. In May 1970, the DA staff was advised of AMC's capability to utilize up to 56 additional TOE units ranging up to company size, but no firm CONUS stationing plan materialized. In April 1972, an AMC representative was advised that the types of units programed for AMC were not deploying to CONUS from Vietnam, and that only through restationing of units in CONUS could units be made available for assignment to AMC. By letter to DA in May 1972, the Deputy Commanding General, AMC, strongly urged the stationing of additional TOE units at AMC depots as originally planned, even at the expense of transfers from CONARC Class I installations. This would take advantage of the excellent training capabilities at the depots, he pointed out, and provide additional support to the CONUS military logistics rotation and training base.[22]

---

19 Ltr, LDSRA-PT, ODCSLOG, to CG, AMC, 5 Apr 71, subj: Rotation/Training Base for Logistics Personnel.

20 Ltrs, AMCPT-SU, Dir/PT&FD, AMC to CO's, ANAD, ATAD, LEAD, NCAD, RRAD, SAAD, SEAD, SHAD, SVAD, TEAD and TOAD, 8 Nov 71, subj: The CONUS Military Logistics Rotation and Training Base.

21 Annual Historical Summary, D/PT&FD, FY 1972, p. 14.

22 Ltr, AMCPT-SU, Dir/PT&FD, AMC, to HQDA (DAFD-ZA), 22 May 72, subj: Stationing of CONARC TOE Units at AMC Installations.

Civilian Personnel Management

(U) Average Grade. In civilian personnel management, Fiscal Year 1972 saw a continuation of the downward trend in civilian strength coupled with a determined drive by higher headquarters to roll back the average grade in Classification Act (civilian) positions. In the austere climate which prevailed, there was an increase in grievances and appeals and other expressions of dissatisfaction, personnel resources were devoted to matters pertaining to consolidations, grade reductions, and appeal actions, with an offsetting decrease in the development of programs and policies.

(U) Phase I average grade reductions were assigned to commanders of AMC major subordinate commands, installations, and activities reporting directly to AMC Headquarters. These reductions were based on grade escalation experience since 30 June 1968, and on Office of Management and Budget (OMB) criteria.[23] Constraints included no arbitrary across-the-board freezes, no reductions-in-force (RIFs) or downgradings solely to meet average grade reductions, and special development proposals were to continue.[24]

(U) As expected, there were subsequent changes in the program. In January 1972, DOD received a measure of relief from OMB.[25] Target dates were extended one year, to 30 June 1973 and 30 June 1974, and a new requirement was added: the 30 June 1971 average grade of filled full-time (permanent and temporary) Classification Act positions became the ceiling for 30 June 1972. The change placed the average grade reduction program on a more realistic schedule.

(U) AMC achieved a reduction in average grade which met the Fiscal Year 1972 objective and gave the Command a head start toward the Fiscal Year 1973 goal. This achievement was due in good measure to the large number of retirees who vacated high grade positions during the last half of Fiscal Year 1972. Average grade reductions of .1550 for Fiscal Year 1973, and again for Fiscal Year 1974, remain to be achieved.[26]

---

23 Ltr, DCG, AMC, to AMC field elements, 6 Oct 71, subj: Control of Grade Escalation in the General Schedule, w/incl: OMB Bulletin 72-4, 5 Aug 71.

24 Ltr, AMCPT-CP to AMC field elements, 15 Oct 71, subj: Control of Grade Escalation in the General Schedule.

25 Memo, ASD (Manpower and Reserve Affairs), 17 Jan 72, subj: same.

26 Annual Historical Summary, D/PT&FD, FY 1972, pp. 33-34.

(U) Equal Employment. Civilian personnel managers worked with the AMC Equal Employment Opportunity Office in developing the AMC Affirmative Action Plan for Equal Employment Opportunity (EEO). The Action Plan, issued 7 June 1972, was consistent with the revised Department of the Army EEO plan issued last year. A Headquarters AMC advisory Council was established as an advisory body to the Commanding General on EEO matters. An Upward Mobility Committee, consisting of the Headquarters EEO Officer, personnel specialists in manpower, position and pay management, training, classification, recruitment and replacement, and employee relations, as well as union, minority, and female representatives, was established to monitor Upward Mobility progress and report quarterly to the Commanding General. [27]

(U) Career Interns. The centralization of the AMC Career Intern Program (CCIP) as of 1 July 1971 was completed. A TDA covering 1,622 spaces in 16 career fields was approved on 26 January 1972. [28] Despite a six-month freeze (September 1971 through February 1972) on recruitment, 702 interns were hired during this fiscal year, and as of 30 June 1972, 1,122 of AMC's 1,622 career intern spaces were filled. [29]

Military Personnel Management

(U) The wind-down in Vietnam and Congressional action reducing the size of the military made Fiscal Year 1972 a year of major transition in military personnel management. "Early-out" programs caused severe unrest among personnel, and a reduction of 1,752 authorized spaces (606 officer and 1146 enlisted) coupled with a reduction of 2,451 in assigned strength (340 officer and 2,111 enlisted) ushered in a new austerity. [30]

(U) Emphasis during the year continued on the objective of the AMC Modern Volunteer Army (MVA) program identified by the Commanding General, AMC, in December 1970. [31] This was a continuing program

---

27 Ibid., p. 42.

28 TDA M1W3JUAA00, US Army Register of AMC Career Interns.

29 Annual Historical Summary, D/PT&FD, FY 1972, pp. 35-36.

30 Ibid., p. 46.

31 Ltr, AMCPT-MS, CG, AMC, to AMC Commanders, 29 Dec 70, subj: Modern Volunteer Army.

throughout Fiscal Year 1972, [32] and it will continue to receive emphasis in the years ahead. It consists of making an Army career more attractive, and thus contributes to the Army's goal of a better, more professional Army and an all-volunteer force by the end of Fiscal Year 1973.

(U) Promulgation of the DA Alcohol and Drug Abuse Prevention and Control Plan on 3 September 1971 [33] provided basic policy and staff guidance for Army-wide implementation of this national priority program. The AMC supplement was disseminated throughout the command in October 1971, [34] and the task of establishing an effective prevention and control program got underway.

(U) A study of how AMC's military personnel space authorizations were being utilized was made during this fiscal year, and plans were made for a more purposeful and systematic use of the command's military personnel. [35] The existing functional distribution, it was revealed, was 55.6 percent of AMC's military spaces allocated to materiel acquisition functions, 14.6 percent to logistical support functions, and 29.8 percent to overhead functions. [36]

(U) In December 1971, Department of the Army announced an expansion of the Army Civil Schooling Program, noting that increasing amounts of civil education would be required of Army personnel. For some members of the Army, the DA message noted, civil education would be of equal or greater importance than advanced military schooling. [37] For AMC, with

---

32 Ltr, AMCPT, CG, AMC, to GEN Bruce Palmer, Jr., 7 Jul 72.

33 Ltr, AGDA-A(M)(26 Aug 71) DCSPER-DACD, HQDA, OTAC, 3 Sep 71, subj: HQ DA Alcohol and Drug Abuse Prevention and Control Plans (HQ DA ADAPCP).

34 Ltr, AMCPT, HQ AMC, 7 Oct 71, subj: AMC Alcohol and Drug Abuse Prevention and Control Programs.

35 (1) Briefing, AMCPT-MT, D/PT&FD to CG, AMC, 20 Oct 71, subj: Distribution of AMC Personnel Assets; (2) Draft, AMCPT-MT, 19 Apr 72, subj: Plan for Restructuring the Allocation of AMC's Personnel Resources.

36 Summary Sheet, AMCPT-MT, Chief, Mil Pers Div to Dir/PT&FD, 12 Nov 71, subj: Distribution of AMC Personnel Assets.

37 Msg 271950 Dec 71, DAPE-ITS, subj: Army Civil Schooling Program.

its exceptionally high educational requirements, this emphasis had been traditional. GEN Miley had urged earlier that education be used as a vehicle to enhance the attractiveness of military service, and AMC's Director of Personnel, Training and Force Development had previously offered the establishment of graduate level military positions as a way to attract superior military personnel.[38] The new DA goals were published in AMC Circular 621-1, and steps were taken to encourage qualified officers to pursue advanced degrees.[39]

Headquarters, AMC

(U) Headquarters AMC continued during Fiscal Year 1972 to experience the organizational stresses associated with dynamic demand in a period of military retrenchment. The Headquarters was subject to a reduction in authorized civilian strength as a result of the Washington Metropolitan Area civilian personnel plan. This reduction was met, for the most part, by eliminating vacant positions. In the military area, a DA-mandated reduction of 15 percent resulted in the deletion of 41 military spaces.

(U) Restructuring. A number of organizational changes were effected, in part to offset accumulating space reductions, but primarily to provide a better-honed organization. The more significant changes were:

- Dissolution of the Directorate of Logistics Operations and transfer of its functions to the Directorate of Plans and Analysis, Directorate of Supply, Office of Depot Management, and Office of Logistics Assistance;

- Dissolution of the Cost and Economic Information Office and transfer of its functions to the Office (formerly Special Assistant for) of Project Management and the Directorate of Requirements and Procurement;

- Transfer of the programing function from the Comptroller to the Directorate for Plans and Analysis;

---

38 (1) Remarks, GEN H. A. Miley, CG, AMC, Luncheon Address, in Proceedings, USAMC PT&FD Conf, 1-2 Feb 71, p. 9; (2) Remarks, MG Robert C. Forbes, Dir/PT&FD, AMC, Presentation before AMC Commanders' Conference, Cameron Station, Alex., VA, 11 Mar 70.

39 (1) AMC Cir 621-1, 5 May 72, subj: General Educational Development; (2) Ltr, AMCPT-M, HQ AMC, 8 Feb 72, subj: Advanced Degree Program.

•Transfer of the organization and mission function from the Directorate of Personnel, Training and Force Development to the Directorate for Plans and Analysis;

•Merging of the Directorate of Requirements and Procurement's Office of Contractor Labor Relations and Small Business Office, and at the same time establishing the Cost Performance Division from the functions gained from the Cost and Economic Information Office.

•Change in title of the Directorate for Distribution and Transportation to Directorate for Supply, while absorbing functions from the Directorate for Logistics Operations and the Equipment Authorization and Review Center. The Plans and Programs Office was completely reorganized, and a Secondary Item Management and Policy Division was established;

•Transfer of the procurement management review survey function and spaces from the Assistant Secretary of the Army (I&L) to Headquarters, AMC (Directorate for Requirements and Procurement).[40]

(U) Average Grade. The DA-directed Average Grade Reduction Program received primary emphasis during this fiscal year. While the Command as a whole was assessed a .1550 reduction for each of two successive fiscal years, the Headquarters was directed by the Deputy Commanding General to achieve a .16 reduction. The revised Fiscal Year 1972 average grade reduction goal was not met, but substantial gains were made in this area by various means. Of the 170 employees who retired during the year, a large number were from high grades. Many of the vacancies thus created were downgraded. Under the headquarters ceiling cutback, many more high-grade than low-grade positions were deleted. The employment at Headquarters level of AMC intern graduates, though slowed by the DA-directed freeze in the third and fourth quarters of the year, also helped lower the on-board average grade.[41]

Installations and Services

(U) The Directorate for Installations and Services was reorganized effective 1 October 1971. The number of separate branches in the directorate was reduced, and certain functions which had been performed at Headquarters, AMC, were transferred to the Installations and Services Agency (I&SA) at Rock Island, Ill. Responsibilities were realigned as follows: The Administrative Office was made a part of the Program Review and Analysis Office; the Real Property Management Division was reduced from five to three branches (Installation

---

40 Annual Historical Summary, D/PT&FD, FY 1972, pp. 68-70.

41 Ibid., pp. 70-72, 76.

Development, Family Housing, and Real Estate) and the Master Planning and the Integrated Facilities System functions were transferred to the I&SA; the Installation Logistical Support Division was made a straight-line division by the abolishment of its two branches; and the Communications-Electronics Division was reduced from three to two branches (Communications-Electronics and Audio-Visual) with technical support, leasing, and COMSEC functions being transferred to I&SA.

Real Property Management

(FOUO) The number of AMC Class II activities increased from 102 to 103 during Fiscal Year 1972; the number of Class II installations remained at 83. The overall acreage reported by AMC during this fiscal year was reduced from 4,783,337 to 4,489,565, and building space decreased from 237,471,502 to 233,130,000 square feet. Total valuation of AMC real property increased from $3,555,000,000 to $3,583,829,000.[42]

Military Construction

(FOUO) MCA. The AMC segment of the FY 1972 Military Construction, Army (MCA) program authorized by Congress contained 69 projects at an estimated cost of $75,424,000. However, Congress declined to fund two projects, and the Command's actual program amounted to 67 projects with an estimated cost of $73,815,000. Some 70 percent of this total was for Air and Water Pollution Abatement projects.

(FOUO) Since DA funding guidance to AMC for FY 1973 was $75 million, AMC submitted a program of 58 projects with an estimated cost of $74.97 million. This included, in response to Executive Order 11507, nearly $29.7 million for control of air and water pollution at Federal facilities. Relocation of Harry Diamond Laboratories ($20.8 million) and a Supply Operation and Storage Building at ARADMAC ($4.5 million) were the other major dollar items.[43] After higher level review, the Department of Defense submitted to Congress 79 new MCA projects and 4 deficiency projects totalling $85.9 million.[44]

(FOUO) Minor Construction. Urgent Minor Construction projects and self-amortizing minor construction projects ($50,000 - $300,000)

---

42 Annual Historical Summary, D/I&S, FY 1972, p. 6.

43 (1) Ltr, AGDA(M)(21 Jul 70) LOG-C-PDBB, DA, 23 Jul 70, subj: FY 1973 MCA Program Guidance; (2) Ltr, AMCIS-MD, DCG, AMC, to OCE, 23 Jan 71, subj: FY 1973-1977 MCA Program.

44 Annual Historical Summary, D/I&S, FY 1972, p. 7.

approved and funded for AMC installations during the fiscal year amounted to $3,233,233. There were 29 projects approved in this category.

(FOUO) PEMA Construction. By the end of Fiscal Year 1972, there were 253 subprojects in the current and prior year PEMA programs under contract at a total cost of $279 million. Another 98 subprojects in this and prior year programs, with an estimated cost of $243 million, were not yet under contract.[45]

Real Estate

(FOUO) Executive Order 11508, issued in February 1972, required that a continuing and critical review be made of all Federal property to ensure that each real estate holding was promptly released when it was no longer required.[46] As a result of such reviews, AMC concurred in the disposal of 18,630 acres of land in 14 locations, varying from one acre at Rock Island, Ill., to 5,000 acres at Fort Wingate Depot Activity, NM.

(FOUO) Following the Presidential decision to eliminate offensive-type biological research programs, a portion of Pine Bluff Arsenal in Arkansas, and all of Fort Detrick in Maryland, became excess to the Department of Defense. Fort Detrick was designated as the focal point for the National Cancer Institute's crusade against cancer and transferred to the Surgeon General, effective 1 April 1972.[47] Actions leading toward the disposal of the Biological Complex at Pine Bluff Arsenal, consisting of 504 acres of land and improvements, were initiated. The Food and Drug Administration, which is presently utilizing the complex, has expressed an interest in acquiring the property for permanent use.[48]

---

45 Ibid., p. 11.

46 Executive Order 11508, 10 Feb 72, subj: Providing for the Identification of Unneeded Federal Real Property.

47 DA GO 10, 28 Jan 72.

48 Annual Historical Summary, D/I&S, FY 1972, p. 29.

Plans and Analysis[49]

Overview

(U) During this fiscal year the Directorate for Plans and Analysis participated in numerous studies, plans and analyses pertaining to organizational and functional objectives of the command, two of which were of particular importance to the long-range mission and vitality of AMC. One of these, the Planning Guidance for FY 1974-1978, published in April 1972, provided subordinate elements of the command with the latest information on long-range resources expected to be available. It was updated as later information became available, and it enabled AMC elements to look ahead and determine what impact projected resources would have on their mission in the future.

(U) Directly related to this was The Optimum Army Materiel Command (TOAMAC) plan, which was forwarded to the Department of the Army on 7 July 1972, presenting the realignments, consolidations, and other changes envisioned as needed to produce the optimum AMC configuration. It reflected a streamlined AMC structure which could function at future reduced manning levels without any degradation of mission performance. The TOAMAC plan, based on continuing resource restraints, projected personnel reductions of 11,047 over the period FY 1973-FY 1976, and monetary savings increasing to, and continuing at, $141 million from Fiscal Year 1978. Execution of this plan will require DOD approval and possibly Congressional notification.

Organization

(U) Throughout the greater part of Fiscal Year 1972, the Plans and Analysis Directorate contained the Office of the Director, three divisions (Concepts and Plans, Systems Analysis, and Study Programs) and an office (Environmental Control Office). When the Directorate for Logistics Operations was discontinued in May 1972, the military planning functions performed by that directorate were transferred to Plans and Analysis and established as a separate division.

(U) In another change, during the last quarter of this fiscal year, the program management functions of the Comptroller, and the Organization and Mission elements of the Personnel Support Agency, were transferred to this directorate in a move to eliminate any duplication of effort in the planning and programming activities. The mission and organization elements of the Personnel Support Agency were established as a fifth division in the Directorate for Plans and Analysis.

---

[49] Material for this section is from Annual Historical Summary, D/Plans & Analysis, FY 1972.

CHAPTER III

RESEARCH AND DEVELOPMENT*

Background

(U) Policy management of the Directorate for Research, Development and Engineering followed much the same course during FY 1972 as in FY 1971. Funding support remained the same, and the Vietnam draw-down had little effect upon directorate activities. Some individual directorate programs, however, did undergo significant changes. The biological weapons development program, for example, ended when the President ordered the production of biological weapons and toxics stopped and existing stocks of such materials destroyed. The AMC also placed more emphasis upon: (1) nuclear programs, because of US-USSR agreement attempts for such weapons; (2) anti-pollution research, to meet new Federal safety standards; (3) vehicle armor, to counter increasingly effective anti-tank (AT) weapons; and (4) upon test and evaluation, to heighten effectiveness of all AMC products, and reduce the time and cost of producing them.

(U) The directorate managed 12 major materiel programs in FY 1972: nuclear; weapons and ammunition; chemical and biological; mortars; vehicles; barriers; armor; countermines; mines; and missiles and four major support programs: mathematics; engineering; foreign intelligence; and test and evaluation. Most of the programs suffered from limited financial and personnel resources.

Programs and Resources

Programs

Nuclear

(C) The nuclear program had two major objectives: to gather information on nuclear weapons effects for use in improving the materiel hardness of AMC-developed items; and, to develop new nuclear munitions to meet stated Army requirements. During this fiscal year, a major problem was that of fitting with the Atomic Energy Commission (AEC), a new warhead into a ballistic match shape for the XM673 8-inch nuclear projectile. It took a full year for both Army and the AEC to successfully determine feasibility of their respective areas of development. The AMC was also asked to assume additional responsibilities for nuclear weapons during this fiscal year, the result of a DoD decision to divest the Defense Nuclear Agency of its development mission. New AMC responsibilities and procedures were established, though this decision had not yet been reflected in applicable DoD directives before the year ended.

*This chapter was prepared from submission of D/RDTE on file in the AMC Historical Office.

Weapons and Ammunition

(U) The weapons and ammunition program had generalized objectives to develop improved weapons systems and ammunition for the field Army. Late releases by higher headquarters of program and funding authority in some projects caused problems in the program.

Chemical and Biological

(U) A primary objective of the chemical warfare program was to study effects of existing lethal and incapacitating chemical munitions and plan defenses against them. The chemical warfare program also had a combat support aspect, consisting of the development of riot control agents and systems; flame and incendiary agents and systems; vegetation control systems; and personnel marking, detection and identification systems. In regard to biological warfare, the objectives were to assess enemy capabilities and to provide defenses against such weapons including detection and protective devices.

Countermines

(FOUO) The countermines program's main goal was to develop, by study contracts, a system that could detect all types of explosive materials, however encased and however hidden. A comparison goal, also long range, is neutralization of the explosive and its effect. Pending such technical breakthrough, the program focused upon short-range attempts to detect and neutralize present enemy systems by developing multiple interim detectors. Some of the main technical barriers to the development of interim devices are the achievement of a low false alarm rate, a rapid sweep rate, and reliability against a broad range of targets.

Mines

(C) The long-range goal of the mine program was the development of a family of scatterable, self-destructing antipersonnel (AP) and anti-tank/anti-vehicle (AT/AV) mines that could be delivered by artillery and rocket, and by aircraft, and ground vehicle dispensers. In FY 1972, the program suffered several setbacks, including DA disapproval of FY 1973 advanced product engineering (APE) for atomic demolition munitions; reduction of effort on the development of the Random Time Delay (RTD) Antipersonnel (AP) Mine; suspension of Engineering Test/Engineering Service Test (ET/EST) on the XM57 Anti-Tank (AT) Mine Dispensing System; and suspension of development of the XM616 AT Fuze.

Missiles

(C) The main obstacle in the missile development program was a lack of both personnel and fiscal resources. As a consequence, the program had to concentrate only upon the highest priority programs. Such programs included terminal homing accuracy devices, laser designators, the HELLFIRE/HORNET Fire-and-Forget Missile, and the MICOM and MUCOM AT Weapons.

Resources

(U) FY 73-78 RDTE Program. In March 1972, the AMC presented its FY 73-78 Five-Year RDTE Program to the Office of the Chief of Research and Development (OCRD), DA. As of 1 June 1972, the CRD had approved the following:

FY 73-78 RDTE Approved Program
1 June 1972
(dollars in thousands)

FY 73	FY 74	FY 75	FY 76	FY 77
1,299,145	1,332,970	1,175,416	1,167,688	1,239,817

(U) The FY 72 RDTE Program consisted of 376 DA projects encompassing 995 tasks. These totals included several project consolidations; OCRD reduced 170 AMC program elements to 74, and the Deseret Test Center (DTC) combined 13 projects into one. DTC also, conversely, established 35 new projects. Finally, AMC carried out an OCRD-directed restructuring of its avionics program.

(U) Total released RDTE funds for FY 1972 totaled $1,092.3 million. To supplement this outlay, OCRD during the year added $41.4 million to the FY 1971 program and $45.7 million to the FY 1970 and prior year programs. Another income source was the FY 1972 PEMA Production Base Support Program, released by DCSLOG to AMC. This program involved $52.6 millions, consisting of 168 funded programs.

(U) With the approval of the FY 1972 RDTE program, Congress stipulated that the services had to obligate all FY 1971 and prior year funds by 30 June 1972 or lose these funds. For the AMC the unobligated balance, including nearly $48 million in additional funds saved during the year, amounted to $204.4 million. Virtually all of these FY 1971 and prior year funds were obligated before the deadline.

(U) By command, these figures were: (in millions)

Command		Program	Unobligated
AVSCOM		$111.9	$.2
ECOM		29.0	.0
MECOM		7.5	.0
MICOM		11.8	.0
MUCOM		8.6	.0
TACOM		10.3	.0
TECOM		7.1	.0
WECOM		10.9	.3
AMC HQ		7.7	.0
	Totals	$204.8	$.5

RDTE Customer Program

(U) The AMC Customer Assistance Office processed 1,686 non-AMC customer orders totalling $80.6 million. The AMC MSC's and laboratories accomplished the work, the bulk of which was for the Advanced Research Projects Agency (ARPA), NASA, DASA, USAF, USN, USMC and AEC. The dollar level for FY 1972 was $51.2 million less than the $131.8 million program in FY 1971.

Management Improvement Techniques

(U) One of the goals identified under the Program for the Refinement of the Materiel Acquisition Process (PROMAP-70) was that of improving RDTE cost estimating capabilities. To ensure that appropriate RDTE personnel were fully trained in cost estimating techniques, a 5-week "Cost Estimating Techniques for Systems Acquisition" course was established at the Army Logistic Management Center (ALMC), Fort Lee, Virginia. An abbreviated 5-day version was also offered at all MSC's having an R&D mission in order to reach as many people involved in cost estimating as possible.

(U) There was a change in Headquarters, AMC, on Chemical-Biological (CB) matters. The Special Assistant for Nuclear, Chemical, and Biological Affairs was redesignated the Special Assistant for Nuclear Affairs. He still retained the CB surety functions, but overall coordination of CB matters was transferred to a Special Assistant for CB Affairs, a newly established office of three people under COL Jerome Aaron.

The AMC RDTE Program*

*Material regarding "Basic Research," Exploratory Development" and "On-going" projects, too detailed and too voluminous to include in this report, is available in the Historical Sources collections in Headquarters, DARCOM.

(C) Nuclear research of note took place in the areas of electromagnetic pulse (EMP), thermal radiation, blast, and radiation physics. EMP results were especially significant for theoretical and digital computation research studies which advanced knowledge of the physical aspect of nuclear EMP and provided nuclear EMP environmental criteria. Work was also initiated on the design and development of a transportable threat level nuclear EMP simulator, to be used in field tests in the vulnerability of Army systems.

(U) Thermal radiation work centered on the response of materials to the thermal radiation waves produced by a nuclear blast. Researchers noted the transient temperature distribution and compression stresses in an aluminum alloy called T-6, that were calculated by using a three-dimensional ulti-mode heat computer transfer code.

(C) In initial radiation, the directorate began a compilation of existing neutron and gamma-ray outputs of US nuclear warheads. For comparison purposes, postulated designs for Soviet warheads were developed. Other developments included prototype models of directional sensors and several calorimeters for use as dosimeters for pulsed high-intensity irradiation experiments.

(C) Blast research centered on the preparation of a series of Army experiments to be conducted by the Defense Nuclear Agency (DNA). Called MIXED COMPANY, the DNA's work was to culminate in a 500-ton High Explosive (HE) Blast Simulation Test at Grand Junction, Colorado, in October 1973. AMC's BRL furnished the Scientific Advisor to the Test Director for the test, and AMC dispatched several items to the test to measure their blast responses, including a tethered in-flight helicopter. AMC also conducted a Blast Vulnerability Program, undertaken by BRL and focusing on the SPRINT Missile.

6.2 Projects-Exploratory Development

(U) The AMC's exploratory development program involved research and testing in many areas in its efforts to apply new knowledge and concepts to improved materiel systems. There were a number of on-going projects, primarily concerned with atomic demolition munitions, electronic fuzes and electronic counter-counter measures, a missile warhead and a nuclear projectile project, and some further work in nuclear weapon effects. There were also many other separate projects which can, for convenience, be grouped into the following eight categories: general purpose equipment, acoustic homing, small arms, crew-served weapons, battlefield command and control, counter mines, food processing, and chemical. Some highlights concerning each of these nine applications follow.

245-082 O - 77 - 5

On-Going Projects

(C) Atomic Demolition Munitions. One firing device and two ADM radio devices were the primary exploratory development efforts in regard to atomic demolition munitions. The overall configuration of the RUMPLER system, whose components included a recoilless launcher, a tripod, a propellant charge, a sabot, a centering ring, and an obturator were established. AMC fired 35 slugs to test the delivery system and munition component designs. The radio devices were an XM18 Coder Transmitter and a decoder-receiver module of the XM 126 Firing Device. ED testing on the transmitter was nearly ready to begin as the fiscal year ended, and it was essentially complete on the decoder-receiver modules.

(C) Electronics. Several types of new electronic fuzes underwent study in FY 1972. These fuzes included a proximity fuze concept with impact override; a prototype anti-armor induction fuze; a frequency-modulated (EM) noise modulation fuze design; and a prototype solid-state avalanche diode fuzing system. AMC also studied designs of active optical and radar/optical fuzing systems.

(C) Electronic counter counter-measures (CCM) also commanded much attention. Of particular impact was a campaign against short-encounter, air-target, on-board jammers. Three devices appeared in this area, including fuze circuit phase shifts for pre-function causes; new circuits to detect targets even when during a favorable signal-to-jam ratio of less than a millisecond; and a low-modulated, solid-state transmitter to function in high electronic-countermeasure (ECM) environments.

(C) Munition Protection Systems. Munition protective systems efforts centered about advanced sensing membranes. While some work was carried forward in this area, the DOD has agreed that the AEC will develop and supply a Security Container System for use with the XM517 and XM673 projectiles.

(U) Missiles and Projectiles. The AMC spent $1 million in FY 1972 in exploratory development of missile warhead and nuclear projectile technology. In the former area, in-house and contract studies produced an analysis, and mock-ups of inertial height sensors. If feasible, these sensors could greatly improve current missile safe and arming systems. In nuclear projectiles, the directorate focused its attention on new techniques, and associated hardware, necessary to provide positive identification of proper rocket motor burn for rocket-assigned projectiles. Several projects in nuclear weapons effects were also continued.

General Purpose Equipment

(U) Exploratory development was carried forward in many areas concerned with general purpose equipment. This included projects in mobile

fire power system technology, sea-to-inland logistics, field mapping and surveying, combat engineer technology, general support technology, POL equipment systems, materiel handling equipment, engineer maintenance technology, and air systems. Some brief notes on some of these development projects follow.

(U) Combat Engineering. Primary interest in combat engineering centered on a 90-foot Armored Vehicle Launch Bridge (AVLB). Incorporating the latest design and newer, lighter weight materials, the bridge consisted of two ramps and a center section, all to be carried on a MBT. Fabrication of a prototype model began before the year's end.

(U) POL Equipment. AMC expanded its fuel decontamination research in FY 1972. The new addition was an electrokinetic fuel decontamination design and model study project, the intent of which was to produce a 100 gallons per minute (gpm) fuel decontaminator breadboard in FY 1973. The command also continued an on-going fuel decontamination study, which uses a physical-chemical approach to fuel decontamination by promoting coalescence of entrained water by the introduction of selected additives.

(U) Material Handling Equipment. Material Handling Equipment (MHE) work was characterized by a number of studies and cooperative projects. The studies included a parametric design study to determine the feasibility of Cybernetic Anthropomorphus Machine Systems (CAMS) controls for a general purpose cargo boom and a feasibility study for carrying 463L pallets inside of an 8'x8'x20' MILVAN container. The AMC also cooperated with CDC's Transportation Agency on the MHE portion of the Trans-Hydro Study, and it retained a member on the Hardware Sub-Committee of the Joint Technical Coordination Group (JTCG) on containerization, a group that was working on the design and fabrication of a modular intermodal container.

(U) Air Systems. The AMC continued work on 16 exploratory development projects pertaining to aircraft and associated systems. This work included the formulation and demonstration of design techniques and criteria for IR suppression systems for turbine engine aircraft; the flight acceptance of a rotating cylinder flap on a modified YOV-10A aircraft; and the comparison of fatigue loads used in engineering development with those experienced in actual operations. The directorate also monitored the design, fabrication, and test of a fiberglass-reinforced plastic tail rotor assembly.

Acoustic Homing

(C) The acoustic homing study had been pursued since 1968, first by a Raytheon Corporation contract, then by MERDC. The intent of the acoustic homing study was the use of the concept for terminal guidance for the HOMINE, a low-density interdiction device for barrier applications. By FY 1972, the study had broken into a series of studies of sub-systems, which included the determination of acoustic signal signatures from various target types, the development of an adequate signal processor scheme for target direction determination, and the selection of a suitable airframe.

(C) The results of these studies were incorporated into an input for two different system investigations. One system was an analog computer representation of a closed loop stochastic simulation model. This model incorporated actual experimental hardware components of sensor and signal processors, and it used actual target signatures. The other model was a systemization of field tests; it combined the interplay of fully integrated experimental systems and live targets operating under quasi-realistic conditions. The results of the tests of these two models indicated that the primary goal, sensing the acoustic signal of a targeted airplane, had been solved. This result indicated the feasibility of the acoustic homing principle.

Small Arms

(U) There were several experimental advances in small arms in FY 1972. In the data comparison area, for example, two advances occurred, one in barrels, the other in wound ballistics. The barrel report indicated that H-11 die steel and co-extended multilayer barrels both advanced gun life. In wound ballistics, research yielded an entirely new wound ballistics methodology for small arms projectiles. This method was called Expected Kinetic Energy (EKE).

(U) There were also several prototypes fabricated and demonstrated. Subjects included a prototype of a Ring Airfoil 2½" - Grenade Single Shot Launcher and a new shellcase, called a Plastic Body Metal Head (PBMH) Case. The AMC also made a complete state-of-the-art review of muzzle device technology. The result was a technical report that summarized various muzzle designs and mathematical techniques for designing muzzle devices.

Crew-Served Weapons

(U) Armor and Artillery Exploratory Development in armor weapons and field artillery consumed $3.784 million in FY 1972. In the former area, most of the interest lay in the continuing attempt to find a suitable expellable metal cartridge case for 152mm Ammunition. About 130 rounds were fired successfully in this attempt. In field artillery, the big event was a USAMC-hosted, May 1972 Ballistic Environmental Measurements Program (BECAMP) Symposium. Tri-service representatives attended this symposium, creating a forum for the discussion of new technological developments in ballistic measurement. Of special interest were those items dealing with the measurement of the ballistic environment on tube-fired munitions from launch impact thru impact.

(U) Infantry Support. The AMC spent $2.82 million for infantry support weapons. The bulk of this money went to various generalized studies including the analysis and effectiveness of mortars, the state-of-the-art of ammunition, and base mortar fuzes. More specific research did center on fuzes for infantry direct fire support weapons systems. This research incorporated the results of tests and experiments on pyrotechnic trains, mechanical, electronic and fluidic devices.

Battlefield Command and Control

(C) The directorate had some 22 on-going projects in battlefield command and control. The main program was a Tactical Radio Communication System (TRCS), a search for a modularized, lightweight net radio system operating in the 2 to 400 megahertz (mhz) band. The goal was to replace all current tactical net vehicular and aircraft radios in the Army in the 1980's. Complementing this were various projects concerned with secure communications techniques, automatic recognition and identification of targets detected by various sensors, improved night vision devices, and counter-weapons radars.

Countermines

(U) The countermine effort involved several missions, including minefield breaching, road/lines of communication (LOC) mine clearing, off-route mine and booby trap removing, landing zone clearing, and riverine operations. Centering on Europe, these varied mission requirements resulted in several FY 1972 systems investigations.

(U) In logistic route clearing, two types of systems came to the fore. One system was a nonexpendable roller; the others were various models of thermal imaging mine detection devices. Tests were conducted on both types.

(U) In mobile mine clearing, MERDC postulated a concept for a Combat Tracked Vehicle Mobile Signature Duplicator. Operating by remote control, the vehicle used various mine-clearing devices, such as power plows, conventional rollers, powered rollers, split tracks, and magnetic devices. The vehicle appeared sufficiently promising to prompt a FY 1973 preliminary feasibility concept, and the mine magnetic sensor device itself became the subject of an in-house study.

(U) In road clearing, no less than five thermal imaging devices were evaluated in the road mine detection role. These five were: a man-portable, hand-held thermal viewer; a tank-mounted, far infrared target indiction device ;a helicopter-mounted, Aerojet General Company forward-looking infrared radar (FLIR); a helicopter-mounted, Hughes Aircraft FLIR; and a fixed-wing aircraft, AN/AAS-24 Texas Company Line Scanner. Of these devices, the hand-held unit was found to be the best, and seven modified units were purchased and evaluated. The directorate was pleased with the tests of the units, but believed that it was necessary to incorporate certain human engineering changes into the units in the coming year.

(U) In mine detection concepts, the directorate mused over several new possibilities. There were gamma-ray techniques for plastic-encased anti-personnel (AP) mines; X-ray techniques for shallow mines; and continuous wave (CW) microwave techniques for anti-tank (AT) mines. In an attempt to get these concepts into a real world, the directorate accelerated the development of field evaluation models of all three techniques.

(U) In mine neutralization, the Army got its biggest input from the Navy. The object of the Army's interest was a Navy-produced fuel air explosive (FAE) by the statically employed BLU 73/B warhead. MERDC, which evaluated the explosive, believed that it had great potential for neutralizing both single impulse pressure and pull-fuzed, high explosive land mines and booby traps. AMC accepted MERDC's evaluation, and the Command began preparations to test the FAE in ground and air-launched modes, as well as against other types of mines, to include hydraulic, double impulse, seismic-infrared, sensing tape, electronic, and magnetic influence.

(U) In vehicle mine clearing, the AMC continued evaluation of various track-width roller and plow devices. Both plows and rollers have proved effective mine neutralization tools, but neither final design nor formal Army requirements are yet established.

(U) In one final area, portable mine detecting, AMC explored a potentially revolutionary possibility. This was a low-energy, gamma-ray backscatter device to detect the presence of explosives in a soil matrix, the feasibility of which has been established. Its great potential lay in its size, for AMC produced a self-contained, experimental model with a sensor head that weighed less than four pounds. This meant that if it proved feasible, it could be used on a hand-held basis.

Food Processing

(U) In 1970 a pilot project to develop a modern feeding system at Fort Lewis, Washington, was initiated at Natick Laboratories (NLABS). Known as the DOD Research and Development Food Program, the goal was the development of a new feeding system which would increase customer satisfaction and reduce operating costs, in that order of importance, and which would then serve as a model for all military services.

(U) NLABS poured its R&D expertise into three parallel study activities: a Consumer Study, to find out what the customer wanted; a Food Service System Study, to design a new system which could give the customer what he wanted at a minimum cost; and an Automated Data Processing Study, to give the food service manager at a major installation level the information he needs to manage his business most effectively and to maintain up-to-the-minute information concerning customer satisfaction. The Fort Lewis feeding system was a $13 million a year operation, and it was believed that it should employ the latest ADP operational and management techniques.

(U) The result has been the design of a new model garrison system for Fort Lewis which is expected to create annual savings of over $2 million when fully implemented. Even more important, the new system is expected to increase customer acceptance of the post feeding service by an estimated 28 percent.

Chemical

(C) Investigation of chemical agents for various uses continued. This included studies of lethal, incapacitating, and riot control agents, as well as associated weapon technology. The medical effects of various chemical agents were also investigated, together with chemical agent alarm, defense protection, and decontamination techniques.

(C) A new system for personnel marking and identification demonstrated in September 1971 offered considerable advantage over the fluorescent system devised in 1969 for use in Vietnam. The major advantages of the new system were that detection could be made in daylight and at ranges up to ten meters, and the system used a modified standard item (the starlight scope), thereby minimizing system costs.

(C) A new and unique spectroscopic concept, the Laser Remote Raman Detection Instrument, received intensive investigation by Edgwood Arsenal. Remote Raman technology seems well-suited to studies of air pollution such as that emanating from industrial smokestacks. A truck-mounted Remote Raman system, using a pulsed doubled-ruby laser source and large collecting optics, was recently completed, the first of its kind ever built. It is the only remote sensing technique which permits a truly quantitative analysis of a contaminated cloud by monitoring a predetermined cloud sample size.

6.3 Projects - Advanced Development

(C) Advanced development continued in ten categories, but a number of these (nuclear, chemical, ammunition, general purpose equipment, small arms, and crew-served weapons) were programs pursuing special lines of inquiry and of comparatively small scale. The major efforts were in the combat vehicles, air systems, and battlefield command and control programs, with important though lesser attention to mines, particularly the XM692E1 (ADAM) mine. Two items, the M66 anti-tank mine and the M69 (practice) anti-tank mine were type classified standard A during this fiscal year.

Combat Vehicles

(U) In the combat vehicles category, the termination of the XM803 main battle tank program provided renewed emphasis in main battle tank technology. Prototypes for a compressible fluid recoil mechanism and for an open/closed loop weapon stabilization system, were fabricated, and integration of cannon, recoil mechanism, loading function and fire control was pursued in support of the new MBT task force. In addition, progress was achieved in the advanced development of the 1500 shaft horsepower turbine engine, including completion of a preliminary 200

hour NATO cycle test with good results. Also, two hybrid engine combustion systems, the Ford Programmed Combustion (PROCO) system and the Texaco Controlled Combustion Process (TCCP) were incorporated into prototype engines at the Tank-Automotive Command.

Air Systems

(U) Air systems projects, on which $29.4 million was spent during this fiscal year, accounted for a large portion of the Command's Advanced Development budget. Work continued on 11 on-going projects, all directed toward upgrading various air systems technology. For example, a modification was accomplished to the AN/APQ-137 Moving Target Indicator Radar which will permit it to track a target while scanning for additional targets. A formal requirement for the Dual Purpose Radar is expected after this capability is tested at MASSTER early in Fiscal Year 1973. In another action, a contract was awarded to Sikorsky in December 1971 for test aircraft to evaluate the Advanced Blade Concept (ABC) system, utilizing two co-axial, counter-rotating, rigid rotors, in actual flight. Also, a joint NASA/Army program for the procurement and proof-of-concept testing of two tilt-rotor research aircraft was initiated. Responses to a request for quotation (RFQ), released in May 1972, are being evaluated by a technical board with a proposed contract award in September.

Battlefield Command and Control

(C) The Battlefield Command and Control category, which accounted for much of the Advanced Development effort, encompassed a number of projects. One was Remotely Monitored Battlefield Surveillance System (REMBASS), exploiting the concept pioneered in Southeast Asia: the use of unattended ground sensors (seismic, acoustic, magnetic) for battlefield surveillance and target acquisition. During this period, the REMBASS Advanced Development Objective was converted to a Materiel Need (MN).

(U) Another was the Tactical Operations System (TOS). A system engineering study, completed on 7 January 1972, produced the TOS 2 (Tactical Operation System Operable Segment) specifications which were used to negotiate a TOS 2 contract awarded on 23 June 1972. The Materiel Need for TOS, co-authored by AMC and CDC, was approved by DA on 2 February 1972. TOS 2 is a R&D test bed which will be tested at MASSTER to validate the TOS concept.

(C) Advanced development also continued on identification, friend or foe (IFF) systems, on portable devices for viewing the contents of packages and suspected explosive devices, on systems for detecting handguns on individuals, on thermal night sights, and on special purpose radars, including radars capable of penetrating heavy

foliage, radars for detecting moving personnel and vehicles, and mortar locating radars.

Electronic Warfare

(C) New starts included a dozen different tasks in various areas of electronic warfare, including radar jamming, missile detection, and Hot Brick. They also included Development Support and Integration Program (DSIP), which consists mainly of efforts to assure interoperability within specified Army Tactical Data Systems (ARTADS) and other manual and automated systems of the Army and other services.

6.4 and 6.7 Projects - Operational System Development

Combat Vehicles

(U) The MBT/XM803 Program was terminated 14 December 1971 by Congressional action. The Congress authorized $20 million in Fiscal Year 1972 funds for termination costs, and another $20 million for initiation of a new tank program. A tank force under Combat Developments Command was established at Fort Knox for this purpose, and support contracts were awarded to General Motors and Chrysler Corporation to do preliminary work toward prototype development.

(U) In the meantime, the M60A1 Tank Product Improvement Program was formally initiated by AMC Technical Committee action. The program was restructured so that the various product improvement efforts, both RDTE and PEMA funded, will be integrated as a system, rather than being pursued individually as separate component improvements. The model number M60A1E3 has been assigned to identify prototypes of the product improved tank being built for contractor test and engineering test/expanded service test (ET/EST).

General Purpose Equipment

(U) A Family of Military Engineer Construction Equipment (FAMECE) Product Manager's Office was established at MERDC. Parallel contracts were awarded to two firms, Lockheed and Clark Equipment, to provide a power unit, a scraper, and a grader to validate the FAMECE concept. Upon completion of the Validation Phase (VP), set for February 1975, one of the contractors will be awarded the Full Scale Development (FSD) contract. When completed, FAMECE will provide airborne, airmobile, and combat engineer units with a family of lightweight, airmobile, wheeled construction equipment, a family which will include a dozer, bucket loader, scraper, compactors, grader, dumper, and water distributor, all powered by a standard interchangeable power module. Delivery of this equipment to the troops is scheduled for 1979.

(U) Type classification (Standard A) was completed on three items of combat engineer equipment during this fiscal year. One, the Cable Reinforcement Set for Panel Bridge M-2, Bailey Type, means that fewer bridge components, trucks, and troops will be required on the longer (100 to 180 foot) spans, and this reinforcement procedure is being pursued for use with the U12 Medium Girder (successor to the standard Bailey) Bridge. Type classification of the Improved Float Bridge (Ribbon Bridge) was accomplished in June 1972, only 33 months after the start of design. This tactical bridging system, capable of carrying class 60 loads, can be emplaced 5½ times as fast as the M4T6 bridge, and with less than half the manpower requirements. Type classification of the six component parts of the Heavy-Duty Membrane Airfield Surfacing System was completed on 30 June 1972.

(U) With completion of the Advanced Technology Program for a 1500 Shaft Horsepower demonstrator engine, a Request for Quotation for an engine development in support of UTTAS utilizing this technology was issued. This resulted in the award of a $97.6 million contract to General Electric on 6 March 1972 for the development and qualification of the T700-GE-700 advanced technology 1500 SHP engine and the UTTAS Air Vehicle engine support.

Test and Evaluation

(U) Test Procedures. During Fiscal Year 1972, Operational Test and Evaluation (OTE) received increased emphasis in the Army. The revision to AR 70-10* introduced two new tests containing elements of OTE - the Developmental Suitability Test (DST), and the Intensified Confirmatory Troop Test (ICTT). The Service Test was redesignated the Expanded Service Test and modified to include an operational phase.

(U) The DST occurs during Expanded Contract Definition as the first evaluation of the hardware configuration. Whenever possible, representative user troops are employed in the test. The EST is conducted insofar as possible in a realistic tactical environment and includes a simulated combat exercise when appropriate. The ICTT is an intensive short duration test of early production materiel of major weapons systems in as realistic tactical environment as possible.

(U) These new testing requirements are being incorporated in the Coordinated Test Programs (CTPs) and test plans for AMC materiel. The existing EST plans for systems costing over $25 million in RDTE funds or $100 million in PEMA were reviewed by AMC, CDC, CONARC, and LDSRA for adequacy of the field exercise in addressing critical issues, and appropriate changes were made to the plan.

*AR 70-10, Test and Evaluation During Development and Acquisition of Materiel, 21 Jul 71.

(U) Organization. The AMC Field Support Activity/MASSTER project was established in July 1971 to provide an organization at Fort Hood to serve as a single point of contact through which AMC elements could furnish support to Project MASSTER. The activity during Fiscal Year 1972 consisted of a cadre of four military personnel, one engineer, and one secretary. This cadre was supplemented by a team of five engineers, one each drawn from the sub-commands of ECOM, AVSCOM, WECOM, MECOM, and TECOM.

(U) On 4 October 1971, the Army Chief of Staff directed the Comptroller of the Army to study the test, evaluation, and field experimentation processes, this being one of ten priority projects established by the Chief of Staff to determine how resources could be saved from within the Army's CONUS base. The purpose of this study was to determine a better and more economical assignment of responsibilities in the area of test, evaluation, and field experimentation.

(U) The resulting study cited eight major problems in the current organization and management of the Army's T&E activities. The principal recommendation was a reorganization of test and evaluation elements which would: Eliminate HQ TECOM and replace it with an Army Test Command under DA. This Test Command would consist of the present test boards (considerably reduced in strength), MASSTER, and CDCEC; retain the proving grounds under AMC control and establish a T&E Directorate in Headquarters, AMC, for supervision of these activities. All engineering tests and customer tests now performed at the test boards would be transferred to the proving grounds.

(U) On 3 January 1972, the Commanding General wrote to the Chief of Staff expressing his concern over the possibility of implementation of any study recommendation which would separate TECOM from the AMC. To date, no action has been taken by DA on the recommendations contained in the study.

Chemical

(C) The 66mm 4-tube Rocket Launcher, M202 and M202A1, were type classified Standard B and Standard A, respectively, for both Army and Marine Corps use. The 66mm Incendiary Rocket, M74, used with this launcher, was type classified Standard A.

Ammunition

(U) A number of projects in the area of conventional ammunition, particularly artillery ammunition, were continued during this fiscal year. These included 152mm ammunition for use in the General Sheridan M551 (Armored Reconnaissance Airborne Assault Vehicle - AR/AAV), ammunition for 155mm howitzers, and field artillery ammunition, as well as ammunition for Close Support Weapon System, and Vehicle Rapid Fire Weapon System.

(U) Vehicle Rapid Fire Weapon Systems (VRFWS). On 19 November 1971, the Assistant Secretary of Defense approved initiation of the Vehicle Rapid Fire Weapon Systems Successor (Bushmaster), and fixed price contracts were subsequently awarded, 16 May 1972, to Philco-Ford, General Electric, and AAE, calling for delivery of two weapons and sufficient ammunition for a competitive shoot-off within nine months.

(U) Type Classifications. Several items of ammunition were type classified during this fiscal year. In the 152mm family, the HEAT-T-MP M409A1 cartridge was classified as adopted type Standard B; and the TP-T M411A3 was classified as adopted type Standard A.

(U) In the 155mm category, both the projectile, HE, XM483 and the fuze, MT, XM 577E1 passed engineering and service tests and were recommended for type classification as Standard A. The 155mm projectile, Smoke, WP, M110A1 was classified as adopted type Standard A.

(U) Other items type classified Standard A included the 40mm cartridge, White Star Parachute M583A1; the M 194 Signal, Smoke, Ground, yellow parachute, and the M195 Signal, Illumination, Ground, green star parachute. The 105mm cartridge, Smoke, WP, M60A2 was re-classified from limited procurement to Standard A, and the 40mm cartridge, white star cluster, M585 was type classified as Standard B.

(U) Big Gun Program. In view of the planned phase-out of the 175mm Gun System, which will be converted to the M110E2 Improved 8-inch Self-Propelled Howitzer (SPH) system, development of the XM510 175mm white phosphorous round was arrested. A product improvement program on the carriage/mount of the M107 and M110, which will be used for conversion to the M110E2 SPH, was approved, and studies of the tube wear on the XM201 cannon were continued.

CHAPTER IV

REQUIREMENTS AND PROCUREMENT

Introduction

(U) The Directorate for Requirements and Procurement underwent several organizational changes during the latter part of FY 1971. The effort to streamline the functional and commodity aspects of the Directorate was realized by the end of FY 1971, and the organization for FY 1972 was as follows: five commodity divisions, five coordinating divisions, and two special offices.

(U) The commodity divisions were comprised of the following: Surface Systems Division, Air Systems Division, Weapons and Munitions Systems Division, Missiles Division, and the Battlefield Command and Control Division.

(U) The coordinating Divisions were as follows: Plans and Programs, Procurement Policy, Industrial Preparedness, Procurement Management Review, and Cost Performance Reporting. It should be noted here that the Procurement Management Review division became the fifth coordinating division in the Directorate on January 9, 1972. Previously, this mission had been exercised by the Office of the Assistant Secretary of the Army for Installations and Logistics.

(U) The two special offices were the Small Business/Contractor Labor Relations Office and the Administrative Office. To achieve a better understanding of what the Directorate is all about, it is necessary to briefly outline the responsibilities of these divisions and offices, and then to examine some of the actions in which they were involved during FY 1972.

(U) Logically, it is best to begin with the functional or coordinating divisions which are responsible for policy and guidance within the directorate pyramidically. Policy originating from the higher headquarters: the Army Secretariats, the DA staff, the AMC Command Group, is passed on to the Directorate. The coordinating divisions within the Directorate are then responsible for developing and interpreting this policy and guidance for the commodity divisions and the AMC field agencies.

(U) As the policy is passed on to the commodity divisions, they become responsible for the acquisition management throughout the equipment life cycle. That is to say, every item in the Army inventory is assigned to one of these five commodity divisions. For any particular item, that commodity division to which it is assigned is responsible for its particular requirements and its procurement. This means that

every commodity division responsible for an item or piece of equipment must monitor the support management system for that item, issue the policy directives and instructions to the commodity command concerned with that item, supervise the development of materiel plans and programs by these commands, and act as the focal point for one or more commodity commands involved with a particular item or piece of equipment.

(U) Generally, vehicles and mobility equipment are the responsibility of the Surface Systems Division. Aircraft are the responsibility of the Air Systems Division. Munitions and weapons are the responsibility of the Weapons and Munitions Systems Division. Missiles are the responsibility of the Missile Systems Division, and Electronics Commodities are the responsibility of the

Plans and Programs

(U) Mission. The Plans and Programs Division accomplishes staff supervision and coordination of AMC Materiel Management activities pertaining to requirements determination, budgeting, programming, and rebuild direction for all PEMA funded Major Items. The division develops, coordinates and monitors planning actions concerning directorate functions pertaining to operational projects, contingency, mobilization, war plans, and introduction of new items of equipment into the supply system. The division also develops the concepts and guidance for the Directorate activities pertaining to logistic support systems in future environments; supervises the equipment allowances program and controls and coordinates the operations of the US Army Equipment Authorization Review Center (EARC), Ft. Belvoir.[1]

(U) Funding Initial Release of the FY 72 PEMA Program. On 1 July 1971, DA released to AMC $1,675.7 million out of a planned AMC program of $3,094.5 million (54%). The following is a summary of the released and deferred program by activity:[2] (in millions)

Activity	Program	Deferred OSD	Deferred DA	Released
Aircraft	111.6	36.7	6.2	68.7
Aircraft Repair Parts	10.7	1.4		9.3
Missiles	399.7	301.1	6.7	91.9
Missile Repair Parts	26.6	19.0		7.6
Wpns & Combat Vehicles	224.3	119.3	27.4	77.6
Tactical & Spt Vehicles	255.0	98.0	122.9	34.1
Comm & Electronics	107.2	23.7		83.5
Other Support Equipment	139.4	7.3	22.2	109.9
Ammunition	1564.4	332.4	38.9	1193.1
Production Base	255.6		255.6	
AMC	3094.5	938.9	479.9	1675.7[3]

[1] 1972 Annual Summary DR&P, p. viii.

[2] Dir. Sig/Act Rep R&P, 25 June 1971 - 2 July 1971

[3] Ibid.

(U) This state of affairs did not last long. On 17 Nov 1971, the House of Representatives passed the DOD Appropriation Bill for FY 1972. It included a separation of the PEMA account into five new appropriations covering (1) Aircraft procurement, (2) Missile procurement, (3) Procurement of Weapons and Tracked Combat Vehicles, (4) Procurement of Ammunition, and (5) Other Procurement. The Senate Appropriations Committee approved these new categories on 23 Nov 1971.[4]

(U) This congressional action created a number of problems for the planners and programmers who had been accustomed to dealing with one lump sum of PEMA appropriations. Now there was little room for maneuvering funds back and forth. Rather, it became a far more complicated process within the categorical boundaries set down by the Congress.

(U) Because this change in PEMA funding from 1 to 5 appropriations came midway through FY 72, AMC was presented with a tremendous problem of restructuring its accounts and records. Naturally, the command was restricted in its ability to reprogram FY 72 funds.[5]

(U) As can be seen in the following chart (Chart 1) of 19 May 72, AMC had been able to meet the challenge of changing funding methodology in midyear and still achieving a high percentage of released-fund awards.

(U) The PEMA Scorecard - established in March 1971, enabled the DRP to review, analyze, and manage the execution of PEMA awards. The scorecard has several features aimed at early recognition and resolution of award problems. Extensive participation and cooperation of division chiefs, coupled with a monthly review presented to the DRP, provided the necessary conditions and tools for attacking the problems of awards. The review is also presented to the AMC staff group DCGMA and to the ASA (I&L) on a quarterly basis.

(U) FY 71 PEMA award performance was $4.3 billion against a released program of $4.9 billion. This represented an award percentage of 89 percent.[6] The total released program for FY 72 was $4.7 billion, a reduction of $.2 billion from the previous year. However, $4.3 billion of this amount was awarded representing 91 percent of the total. This is the highest percentage of PEMA awards ever achieved in AMC's history.[7] The value of such a tool as the PEMA scorecard is evident,

4
Dir. Sig/Act Rep R&P 22 Nov 71 - 26 Nov 71.
5
1972 AMC Annual Summary DR&P, p. 48.
6
1971 AMC Annual Summary, p.237
7
1972 AMC Annual Summary DR&P, p. 46.

U. S. ARMY MATERIEL COMMAND
FLASH REPORT STATUS OF TOTAL FY 72 PEMA PROGRAM, RCS AMCRP-114
AS OF 19 MAY 72**

($ Millions)

COMMAND	RELEASED PROGRAM FY 72 ARMY	FY 72 CUSTOMER	PRIOR YEARS	TOTAL	AWARDED CUMUL. TO DATE	% OF RELEASE	(FY 71)	30 JUN FORECAST ANTICIPATED RELEASED PROGRAM	% AWARDS FORECAST	OBJ
AVSCOM	91.4	47.0	68.5	206.9	122.0	59	(53)	207.8	88	88
ECOM	109.9	48.2	248.7	406.8	271.0	67	(74)	405.1	92	83
MECOM	116.0	24.6	38.1	178.7	94.2	53	(60)	178.4	94	83
MICOM	320.9	99.6	79.4	499.9	401.9	80	(75)	544.8	96	92
MUCOM	1645.9	420.7	305.5	2372.1	1887.3	80	(78)	2448.3	97	94
TACOM	205.2	98.2	143.5	446.9	344.7	77	(72)	427.5	94	86
WECOM	139.7	172.1	49.3	361.1	204.4	57	(71)	369.0	73	93
TECOM/ AMXMR	3.5	0	0.3	3.8	3.4					
OTHER*	98.1	0	5.2	103.3						
TOTAL	2730.6	910.4	938.5	4579.5	3328.9	73	(72)	4580.9	92	91%
						DA/OSD DEFERRED		44.6		OR
								4625.5		$4.191M

*REPROGRAMMING, INTRANSIT AND HELD AT AMC
**Inclosure 1 from AMCHO file of DRP dated 23 May 72, subj: PEMA Award Performance May & June 1972

CHART 1
58

UNCLASSIFIED

UNCLASSIFIED

affording high visibility of problem areas and allowing the capacity for quick reaction make this a reliable and proven asset to the awarding of PEMA funds.

Project Expedite

(U) In November of 1971, the Deputy Secretary of Defense called attention to the Services' slow and incomplete utilization of procurement and research and development authority. He directed that a maximum effort be exerted to accelerate obligations and expeditures, with the objective of reducing unobligated and unexpended balances to the minimum levels required.[8]

(U) As a result, a DOD Steering Group was established on 4 Nov 71 with representatives from the Army, Navy and Air Force.[9] This panel, much like the PEMA scorecard in AMC, was aimed at giving high visibility to problems in program execution. They were to monitor the programs from the OSD level down through the working levels of the Army.

(U) It became AMC's responsibility to identify those problems in its funding/programming which needed rectification. In the same vein, AMC was assigned goals for PEMA obligations and expenditures and for RDT&E obligations and expenditures. To meet the PEMA obligation targets, the existing PEMA award target was raised from 91% to 92%.[10]

(U) Project Expedite has demonstrated its applicability to Army program improvement as evidenced by the fact that all assigned goals were exceeded.

Major Item Management Improvement Program (MIMIP)

(U) MIMIP was established on 15 July 1972 at the direction of the DRP. It was aimed primarily at the Army Materiel System Acquisition Managers (AMSAM's). The reasons for its establishment can best be summarized by the following: The role of the Requirements and Procurement equipment system manager is complex. The manager participates in many significant actions as the equipment system progresses through its life cycle. Changes in the organization structure of the headquarters and the commodity commands and changes in operating policies have transformed this manager's role to the degree that no existing policy clearly identifies the responsibility of the equipment system manager.[11]

---

[8] 1972 AMC Annual Summary, DR&P, p. 49.

[9] Ibid., p. 49.

[10] Ibid., p. 50.

[11] Significant Actions Report, Director Requirements and Procurement, 23-30 July 1971

245-082 O - 77 - 6

(U) With this situation in mind, MIMIP called for (1) identification of the responsibilities of the equipment system manager, (2) the development of an understanding of these responsibilities by the managers, and (3) providing the necessary tools (i.e., visibility, communication, authority, etc.) to carry out those responsibilities.

(U) AMCRP Memorandum 700-2,[12] Manual for the Army Materiel System Acquisition Manager, AMSAM, was published 15 Dec 71, outlining duties and responsibilities of the AMSAM.

(U) The MIMIP Training Program was initiated in January 1972 providing instruction to both AMSAM's and DRP staff officers.

NICP Management Reviews - Mobilization Reserves

(U) From 1 Sep 71 thru 17 Mar 72, a management review of all the NICP's, with the exception of AVSCOM, was conducted. This is a new method of examining the procedures and guidance for mobilization res- reserves being exercised at the NICP's. The programs reviewed were: Theater War Reserve Levels; Computation of General Mobilization Requirements; Mobilization Reserve Stockage List (MORSL); Contingency Support Stocks (CONSSTOCS); Operational Projects.

(U) Although major problem areas were not encountered during this review, clarification and improvement of the various programs is needed. This will be one of the objectives of further reviews of the NICP's to be conducted in FY 73.

AMC RCS 145 Reports for Operational Projects

(U) A 145 Report constitutes a stock status report. The main problem with these reports has been that they were incomplete. In particular reference to USAREUR, "AMC has been experiencing difficulty in obtaining complete stock status reports for USAREUR operational projects."[13]

(U) To remedy this situation, a number of actions were initiated: (1) Visit to USAREUR (USAMATCOMEUR in January 1972); (2) Coordination with the NICP/ACMA's to validate data on logistic assignments, costs and compliance with the established format for reporting; (3) Conversion of assets in Operational Projects categorized as (POMCUS) Prepositioned Oversea Materiel Configured to Unit Sets for USAREUR. The conversion was accomplished with the assistance of the Logistics Systems Support Agency (LSSA). USAREUR furnished data contained on the DLOGS Property books for the POMCUS projects, and the conversion to the 145 format was completed by LSSA.[14]

---

[12] Ibid.

[13] Dir Sig/Act Rep R&P 24 Sep - 1 Oct 71

[14] 1972 Annual Summary, R&P p. 54

(U) This action was both necessary and valuable. With increased coordination of the NICP/ACMA's, a greater cooperation with USAREUR, and inclusion of POMCUS stock assets, a more complete report of the assets for Operational Projects was achieved.

AR 11-11 Major Command Stockage Levels Worldwide

(U) USAMC is responsible for computing the annual theater war reserve levels for the overseas commands. For CY 72, HQDA ACSFOR furnished USAMIDA the Structure and Composition Systems (SACS) file on 15 March 1972 as the basis for computing the FY 73 levels. Selection of repair parts for computation was based on combat essential parts coded as such in the Availability Balance File (ABF) and DA Circular 700-18.

(U) The Class VII levels computed by USAMIDA were furnished to all overseas commands on 31 May 1972. The Class V computed levels by MUCOM were distributed on 15 June 1972, but required recomputation owing to changes in SB 38-26. The revised Class V levels are scheduled to be furnished to all overseas commands on approximately 18 August 1972. Computed levels for the remaining classes were furnished to the overseas commands during the period 16 June - 18 August 1972.

SB 700-40, Mobilization Reserve Stockage List (MORSL) 5 May 1972

(U) This supply bulletin provides a consolidated list of Mobilization Reserve Stockage Items authorized for worldwide use, and it is used as a basis for computing OPLANS and mobilization reserves. This bulletin supersedes the 25 May 1971 publication, being completely revised and including items in support of Allied forces.

AMCR 11-30,Mobilization Reserve Stockage List (MORSL) (SB 700-40) and MORSL Support List, 18 December 1970, w/change 1, dated 12 July 1971.

(U) These regulations prescribe objectives, policy and responsibilities for the selection and identification of procurement of equipment and missiles, ARMY (PEMA), and Army Stock fund (ASF) End Items and Repair Parts to be maintained in mobilization reserves.

(U) These regulations have been completely revised and furnished to AMC publications on 28 June 1972.

(U) In regard to Secondary Items, the Materiel Policy and Guidance, Secondary Items, FY 1973, provides necessary information and instructions for the computation of mobilization materiel requirements for secondary items funded by the Army Stock Fund and by appropriations.

(U) On 18 January 1972, revised guidance was furnished to all ICP/ACMA's for use in computing revised mobilization requirements, stratification of assets and development of the FY 1974 budgetary programs.

Defense Materiel Utilization Program.

(U) The Defense Materiel Utilization Program (DMUP) is governed by DOD Manual 4140.34-M. AMC's implementation of this manual is AMCP 1-12 as well as Policy No. 700-9 in the CG, AMC's Policy Book.

(U) The purpose of this program is to get a DOD-wide reading on requirements and potential long supply assets from all the ICP's. To accomplish this, the ICP's submit quarterly findings to the Defense Logistics Service Center (DLSC) for mechanical screening. DLSC then makes an offer to the ICP on a particular item, which the ICP reviews and accepts or rejects based on his need at that time for that particular item.

(U) FY 1972 saw continued command emphasis placed on DMUP and the results reflect better circulation of information and flow of items within the Defense establishment. AMC's participation in the program is reflected in the following statistics and discussion.

Offers from Other Services to fulfill AMC requirements

(U)	Value of Offers (in millions of dollars)	% of Offers Accepted
FY 1971	19.96	55%
FY 1972	14.96	73%

(U) This represents a $5 million reduction in the cost of incoming assets, while increasing our acceptance of offers by 18% over FY 1971. The number of items accepted in FY 1972 was 55% greater than in FY 1971. The reason for the reduction in dollar value of the items was probably owing to the low dollar value of the items and/or smaller quantities of each item required. This indicates improved management of our particular requirements through better evaluation and analysis from the NICP's and better flow of information on item requirements throughout the command. [15]

AMC Assets Required by Other Services[16]

No. of Requests	Value of Requests	No. Shipped	Value of Items Shipped
FY 71-15,000 items	$25.59 million	9,635	$13.75 million
FY 72-11,000 items	$43.12 million	7,449	$ 8.67 million

(U) Shipments of items remained at 60% in FY 1972, unchanged from FY 1971. The number of shipments is the best indicator of how well the system works, in that it reflects how effective the processing of items from initial order to receipt by the customer. The backlog of unprocessed offers and shipments is the main problem.

(U) Although the Army's shipment rate was the highest of all the services and the denials were the lowest, there was a significant increase in the backlog of offers and shipments:

	Offers	Shipments[17]
FY 1971	311	214
FY 1972	3,725	418

The responsibility for the backlog can probably be found at one ICP (AVSCOM) which recently went on the ALPHA system, and has encountered program difficulties in processing offers and shipments.[18]

---

[15] 1972 Annual Summary R&P, p. 59

[16] Ibid., p. 60

[17] Ibid.

[18] Ibid.

Basis of Issue for Army Equipment and Related Functions.

(U) AR's 71-2 and 310 series prescribe policies and procedures for preparing, processing and approving Basis of Issue Plans (BOIP) and Authorization Documents, respectively.

(U) In August 1971, the Commanding Generals of AMC and CDC expressed a desire that only minimum essential items be included in TOE and BOIP. The US Army Equipment Authorizations Review Center (EARC) was designated the AMC Central Control and Coordinating Center with responsibility for insuring that all materiel requirements documents are reviewed to prevent "nice-to-have" items from appearing on BOIP's and Army Authorization Documents.

(U) During FY 1972, 1,000 materiel requirements and basis of issue documents were reviewed. Two hundred projected requirements were deleted from these documents with a cost avoidance of over 124 million dollars. Authorization Documents numbering 1,200+ were reviewed, with 400+ items deleted. This resulted in a $900,000 elimination of materiel requirements.[19]

(U) This can directly be credited to the command emphasis placed on this task and the efforts of the EARC.

Standard Integrated Support Management System (SISMS)

(U) SISMS is a tri-service standard system for the planning and management of logistics support of a weapons system throughout its life. SISMS was developed by the Joint Logistics Commanders of AMC, NMC, AFLC, and AFSC and approved by them on 18 March 1969.[20] SISMS was endorsed by the Service Secretaries and accepted by OSD for listing on the Acquisition Management Systems List, DOD Manual 7000-6M, in 1969.[21]

(U) The Joint Commanders agreed on 15 December 1970 to implement the SISMS on multiservice aeronautical system and to the maximum practical extent on all other systems.[22] On 21 July 1971, the JLC's agreed to utilize SISMS to the maximum practical extent for all other systems (non-aeronautical and/or single-service).[23]

(U) The most significant AMC actions in regard to SISMS during FY 1972 began with a policy letter issued by the CG, AMC to AMC elements,

---

[19] Ibid., p. 63.

[20] AMCHO files of DRP dtd 18 Oct 71, subj: Standard Integrated Support Management System, to: CG, AMC, from: GEN Hinrichs, DRP.

[21] Ibid.

[22] Joint Agreement of Report on the Impact Assessment and Implementation Planning for the Standard Integrated Support Management System (SISMS) dated 15 Dec 70, see: Submission of SISMS 1972 Annual Summary DRP, Appendix 1, in Plans and Programs Section.

[23] 1972 Annual Summary DRP, p. 64.

commodity commands, and project managers. This letter indorsed the SISMS concept and directed that SISMS will be utilized on all new weapons systems. It also stated that DRP is the SISMS Staff Director.[24] Formerly, the SISMS functions were the responsibility of the Integrated Weapon Support Management (INSM) Office under the DCGMA. They now come under the auspices of the Plans and Programs Division of DRP.[25]

(U) Following this letter, the DRP issued an Implementation Guidance Letter on 6 March 1972 which, in part, read: "When the CG, AMC signed his letter of 17 January 1972, he did not intend that all existing AMC regulations, directives and procedural guides would immediately become extinct to be replaced in whole by SISMS procedures Obviously, the impact of that kind of action would more than offset the foreseeable benefits of adopting a standard system such as SISMS. On the contrary, implementation of SISMS must be accomplished in an orderly time phased manner to avert any adverse impact on existing systems and programs. To accomplish this, SISMS will be incorporated on an evolutionary basis into our existing documentation controlling logistic support procedures, either by substitution or addition." [26]

(U) During the 3d and 4th Quarters of FY 1972, many systems were reviewed to ascertain whether or not any could or should contain SISMS requirements. Twelve of these systems were designated to utilize specified contract and data requirements of SISMS as follows: Utility Tactical Transport Aircraft (UTTAS) (Airframe); Utility Tactical Transport Aircraft (UTTAS) (Engine); Mechanized Infantry Combat Vehicle (MICV); AN/TTC-39 (V) Prototype Model (Tri-Tac Related); Laser Designator Tracker System (LTDS) AN/UAS-8 (V); Mobile Mortar Locating Radar, AN/TPQ-36; 40mm Image Intensified Assembly w/Automatic Brightness Control, MX-7856A; Radar System for Tracking Ammo Projectiles; SAM-D Missile System; Stinger Missile System; Continuous Automated Analysis & Control System for Phosphating Baths; and Distributor, Bituminous, Truck Mtd. 5100 gal.[27]

Procurement vs. Overhaul

(U) The study and analysis of PEMA and OMA programs that started in FY 1970 was continued through FY 1972. The PEMA computer programs were completed and an automated study was produced by the NICP's on all major items to be procured in FY 1973.

(U) An interim ADP program was developed for the OMA program and a mechanized Procurement vs. Overhaul Analysis Worksheet was produced

[24]AMCHO Files of DRP - Director's Sig/Act Report 14-21 January 1972.

[25]1972 Annual Summary DRP, p. 64.

[26]AMCHO files of DRP: ltr dtd 6 Mar 72, subj: Implementation Guidance, Standard Integrated Support Management System (SISMS), signed: GEN Hinrichs.

[27]1972 Annual Summary DRP. Section on Plans & Programs Appendix 4 to SISMS.

by the NICP's for major items. Total automation of the worksheet is scheduled for 3d Quarter FY 1973.[28]

Standard Study Numbering (SSN) System for Line Item Numbers (LINs)

(U) During FY 1972,action was initiated to insure that all major item LINs listed in SB 700-20 were reviewed for possible assignment of a standard study number. The problem which had arisen in regard to the SSN can best be described as follows: Since the SSN file was established, attempts have been made to be more definitive in the LIN coverage desired. However, all encompassing statements such as "all PEMA," "all RICC 1 and 2 with PAC 1," etc. have not proven successful.[29]

(U) To remedy this problem, a major item LIN has been defined as a LIN designated as Class of Supply IV, V, VII, or X, with a Processing Appropriation Code (PAC) in SB 700-20.

(U) A monthly transaction analysis was developed that identifies all adds, deletes, and changes made to the SSN file during the previous month. Draft AR 710-60, Standard Study Numbering System and Related Factors, was developed and is now in final staffing. The SSN file as of 30 June 1972 contained 6285 LINs of which 3946 are major items in accordance with the above definition.[30]

Depot Overhaul Requirements

(U) During FY 1972,both the 10th and 11th DA Depot Maintenance Review Boards (DMRB) were held. The 10th DA DMRB held during July and August 1971 covered FY 1972 and FY 1973 overhaul requirements. DA approval of overhaul requirements from the 10th DA DMRB were received on 3 September 1971.[31]

(U) The 11th DA DMRB, held during January and February 1972, covered FY 1972 executions to date and FY 1973-1974 overhaul requirements programs. At this time, the DCSLOG pointed out two problems which resulted from a lack of data: (1) Unserviceable items did not track from FY 1972 to the out-year FY 1976. (2) Gross requirements were understated. For example, in some cases, the overseas excesses were not picked up in CONUS and the relationship of unserviceable to AAO and current policy were not considered.[32]

---

[28]1972 Annual Summary, DRP, p. 66.

[29]Ltr, AMCRP-PO, HQ USAMC, dtd 3 May 72, subj: PEMA Major Item Standard Study Number (SSN) System, contained in SSN System section of Plans and Programs of FY 1972 Annual Summary.

[30]1972 Annual Summary DRP Section on SSN system in the Plans and Programs Section, p. 67.

[31]Ltr, DCSLOG-M-DMB, 3 Sep 71, subj: Revised FY 72-73 Depot Maintenance Program (P7M).

[32]Dir, Sig/Act Report R&P, subj: 11th DA DMRB dated 7 Feb - 11 Feb 72.

(U) To remedy this, the DCSLOG stated that the following data was required for each category: (1) Line item program 72-72 with corrected gross, net funded quantity and cost. (2) Worldwide priority stratification FY 1972-1974. (3) Verify FY 1974 CORC (Chief, Office of Reserve Components). (4) List of FY 1974 candidates for PEMA/OMA trade-off.[33]

(U) As a result of reorganization of the DRP, overhaul requirements determination for secondary items was transferred to the Directorate for Supply.

Army Materiel Plan for Ammunition (SAMPAM)

(U) Over the past several years, the SAMPAM system has not been used to support the DA data bank at Radford for ammunition as it has been doing for other major item equipment. HQ AMC letter, dated 9 July 1971, to DCSLOG highlighted deficiencies and proposed solutions to the SAMPAM system as it applies to the Ammunition AMP and its capability to update the DA budget data bank. This letter proposed to make changes required to the SAMPAM computer programs to correct any known deficiencies to the system by not later than January 1972.[34]

(C) There are a few examples of deficiencies in the SAMPAM program in the form of no data on the following: (1) Unit/fixed costs (FY 1971 thru FY 1977); (2) Sales and other losses (monthly June 1971 thru FY 1977); (3) USARV/ROK/FWF SEA losses (actual 30 Jun 71 thru 31 Jul 71); (4) ARVN/LAOS losses, assets, and stock objectives (July 71 losses, 31 Jul 71 assets and stock objectives based on level-off weapons density in FY 1972).[35]

(U) The required changes were made and a SAMPAM machine printout and magnetic tapes reflecting the FY 1973 President's Budget data were submitted to DCSLOG for review and test of the machine programs on 31 Jan 72.[36]

(U) DCSLOG accepted the SAMPAM system for ammunition and as a result SAMPAM was used for the first time in many years in support of the FY 1973 Apportionment Request. This completed action reflected the efforts of DRP to work with DA in keeping a handle on the ammunition situation. The broadening of the SAMPAM program allowed for a more complete and realistic picture of the requirements and procurement of ammunition.

---

[33] Ibid.

[34] Director's Sig/Act REP R&P subj: Army Materiel Plan for Ammo (SAMPAM) dtd 31 Jan - 4 Feb 1972.

[35] Ltr, AMCRP-PO, HQ, AMC, 9 Jul 71, subj: Use of SAMPAM System to Support the DCSLOG Computational Data Bank on Ammunition (U)

[36] Ltr, AMCRP-W, HQ, AMC to HQDA (DALO), 31 Jan 72, subj: Use of SAMPAM System to Support DCSLOG Computational Data Bank on Ammunition.

System for Estimating Materiel Wartime Attrition and Replacement Requirements (SYMWAR)

(U) In September 1964, AMC contracted the Research Analysis Corporation (RAC) to undertake a study with the objective of developing a methodology for determining requirements for PEMA items to replace wartime losses. The RAC study and contract were completed in August 1970, and the documentation and machine programs were turned over to AMC/MIDA.[37]

(U) Input to the system consists of loss tables developed by RAC, PEMA items classification information, and a scenario which would reflect the current wartime planning and the associated PEMA Policy and Guidance. The MIDA test was based on an available, earlier scenario - which was considered adequate for test and comparison purposes. In the test, war-time active and inactive replacement factors were generated for 81 PIBL items from four of the commodity commands. A run of the AMP was made using the same SACS file as the March 1971 Apportionment run, but with the SYMWAR factors. Combat consumption, pipeline, and mobilization training requirements were then compared with those from the Apportionment run. The overall dollar investment increased only 7%, but there were significant and realistic variations in the individual items.[38]

(U) The MIDA test and implementation of the system was successful. DA provided interim approval for use of the SYMWAR system for development of the FY 1974 President's Budget Estimate.[39]

(U) AMC provided specific answers to DA with advice that SYMWAR factors had been incorporated into the Standard Study Number (SSN) file for use with the FY 1974 Budget.[40] Advice was furnished to all NICP's that the replacement factors developed under the SYMWAR system would be utilized for the FY 1974 Budget.[41]

---

[37] 1972 Annual Summary R&P, p. 70.

[38] Director's Sig/Act Report R&P (Automated) SYMWAR dtd: 23 Jul 71-30 Jul 71.

[39] Ltr, DALO-MAB-T, HQDA, 10 May 72, subj: SYMWAR.

[40] Ltr, AMCRP-PO, HQUSAMC, 25 May 72, subj: SYMWAR.

[41] Ltr, AMCRP-PO, HQUSAMC, 12 Jun 72, subj: SYMWAR.

Procurement Policy

Mission

(U) Coordinates the planning and execution of the AMC procurement and productions missions by developing and implementing the plans, policies, programs and procedures which relate to AMC procurement and production management. Production management includes procurement contract pricing, contract financing, production and associated areas. This division also provides AMC staff directions and guidance for all aspects of the administration and provides technical and professional services required to facilitate and support the procurement and production processes. The division acts as the program director for central procurement activities and industrial preparedness operations. It also directs the operations of the AMC procurement agencies and activities for which Headquarters, AMC is the head of procuring activities. This division performs the functions of the head of a procuring activity for the US Army Research Office, US Military Academy and separate AMC installation and activities.[42]

Procurement Management

Transfer of Mission

(U) Effective 9 January 1972, the Procurement Management Review Division (AMCRP-R) was transferred from OASA (I&L) to HQ AMC and assigned to DRP. This transfer was to be on a one-year trial basis. To perform its Army-wide procurement management review mission, the Division's staff is composed of eleven professionals and three clerical.[43]

(U) As directed by DOD Directive 5126.34, 27 July 1966, and AR 715-11, 26 August 1966, reviews are required to be made of all major procurement organizations, including contract administration offices, at a minimum of every three years and preferably every two years; and other activities which do a limited amount of purchasing or contract administration on a sampling basis.[44] This division also participates in studies and surveys at AMC, Army and OSD level. This review staff provides an advisory service to the ASA(I&L) and the CG, AMC and functions as a consultant to the Army activities reviewed.[45]

---

[42] Annual Summary DRP FY 1972, pp. viii-ix.

[43] 1972 Annual Summary, DRP, p. 45.

[44] Ibid.

[45] Ibid., p. x.

(U) There was no change in mission from DA to AMC in the transfer. The following memorandum contained these comments: AMC will be responsible for performing the DA procurement management review mission effective 10 January 1972. The Procurement Management Review Division will be under the Directorate of Requirements and Procurement. The change will have little effect on the way of doing business. When the procurement management review will be within the AMC complex, the letter will be signed by the Director of Requirements and Procurement. Those covering activities outside will be signed in ASA(I&L). We will continue to operate under DOD direction and Army Regulation 715-11.[46]

Procurement Management Reviews

(U) Since the Division's assignment to HQ AMC, a report was prepared and published as a result of a PMR conducted at MUCOM/APSA, Joliet, during the period 20 Sep 71 - 8 Oct 71, prior to assignment to HQ AMC. Additional reviews have been made as follows: MICOM: 17 Jan - 4 Feb 72; MILAN AAP: 12 - 31 Mar 72; Jacksonville Engineer District: 13 - 31 Mar 72, Report in preparation; MECOM: 8 - 26 May 72, Report in preparation.[47]

Cost Performance

Mission

(U) To direct, control, coordinate and supervise the AMC implementation of the DOD Selected Acquisition Information and Management Systems commonly referred to as SAIMS and to serve as the DA focal point for inter-service implementation of C/SCSC. Contractor cost/schedule control system criteria of DOD Instruction 7000.2. This division also develops and implements procedures for obtaining contractor cost data, provides guidance to project managers and commodity commands on the effective analysis and use of contractor cost and schedule data. It also conducts surveillance reviews at contractor plants to determine that accepted contractor management systems are continuing to meet DOD criteria and conducts presentations and industry/government seminars relating to SCSC concepts, policies and implementations.[48]

---

[46] Memorandum from DRP Hinrichs thru DCGMA for DCGAMC, subj: Procurement Mgmt Review dtd 27 Dec 71, in AMCHO files DRP, p. 45.

[47] FY 1972 Annual Historical Summary, DRP, p.45

[48] FY 1972 Annual Historical Summary, DRP, p. X.

Small Business Office and the Contractor Labor Relations Office

(U) The AMC Small Business Program continued to make progress in keeping with the President's efforts to give small businesses a larger percentage of government contracts. FY 1972 saw 14.5% of all AMC business dollars awarded to small business firms.[49] This figure exceeded the overall AMC goal of 12.5% and indicates a significant improvement over previous years' awards. All major commands met their assigned goals except USAECOM which missed its goal of 18.5% by .2%.[50]

(U) AMC finished among the leaders in the nation in support of the President's Minority Business Enterprise Program for awarding 8(a) contracts. The objective in FY 1972 was to award $6.5 million in 8(a) contracts, however, by January 1972 AMC had already awarded or was in the process of awarding contracts valued in excess of $9 million.[51] By the close of FY 1972, contracts in excess of $14 million had been awarded.[52]

(U) In July 1972, the Small Business office and the Contractor Labor Relations merged in a single office, as co-tenants with a sharing secretary arrangement.[53]

Weapons and Munitions Division(AMCRP-W)

(U) The Weapons and Munitions Division is composed of three branches, Conventional Ammunition Branch, Special Ammunition Branch, and Individual and Crew Served Weapons Branch. The two ammunition branches interface with MUCOM and the weapons branch with WECOM. The following programs were significant during FY 1972.

Rifle, M16A1

(U) The Rifle, M16A1 is a commercially developed weapon. It is a lightweight, air-cooled, gas-operated rifle which is fed from a 20/30 round magazine and may be fired full automatic or semi-automatic at a cyclic rate of approximately 800 rounds per minute.[54]

---

[49] 1972 Annual Summary DRP, p. 97.

[50] Ibid.

[51] Director's Sig/Act Report Minority Business Enterprise Program, Section 8(a) dated: 10-14 Jan 1972.

[52] 1972 Annual Summary DRP, p. 97.

[53] Ibid.

[54] 1972 Annual Summary DRP, p. 2.

(U) A contract was let in October 1971 to Colt's Inc. for a quantity of 254,238 M16 rifles with a 100% option clause. The weapons were to be produced at the rate of 20,000 rifles per month. At various times during FY 1972, portions of the option were exercised and on 28 June 1972 the total option was exercised with production to be completed in June 1973.[55]

(U) An example of the exercise of Colt's option came on 1 November 1971, with authority granted to WECOM to exercise Colt's option for 115,000 M16A1 rifles to fill a Marine Corps order.[56]

(U) Harrington and Richardson completed production in FY 1971, however, layaway was completed in February 1972 with a portion of the equipment laid-away on site and the balance laid-away at Seneca Army Depot. The layaway posed a number of questions in that rifle production for FY 1973 was anticipated which would require production capabilities of H&R.

(C) A study of requirements and assets for the M16A1 rifles indicates a need for the procurement of rifles during FY 1973, and there will be a shortage to the AAO of 194,731. Other customer funds will provide for the procurement of 91,645 rifles. Also a planned FY 1973 supplemental budget for approximately 45,000 rifles covering SEA losses, is in process of submission. This will make a total of 136,645 rifles planned for procurement in FY 1973.[57]

(U) This is an example of the sort of problem encountered in the production of and production capabilities for the M16 rifle.

(U) The Hydromatic Division of GMC completed production in FY 1971 and all production equipment was laid away at the Pontiac Government Storage site.[58]

Grenade Launcher, 40mm, M203

(U) The Grenade Launcher, 40mm, M203, is a lightweight, compact, breech-loading, pump-action, single-shot manually operated weapon. It

---

[55] Ibid.

[56] Message: 1 Nov 71, CGUSAMC to CGUSAWECOM, subj: Procurement of M16A1 Rifles.

[57] Ltr from AMCRP-WW to OASA (I&L), dtd 13 Jun 72, subj: Layaway of Harrington and Richardson (H&R) Rifle Production Equipment.

[58] 1972 Annual Summary DRP, p. 2.

is used in conjunction with the M16/M16A1 rifle and is capable of firing the standard family of 40mm ammunition. The M16A1/M203 combination weapons system provides the grenadier with both an area and point fire capability. The M203 replaces the M79 grenade launcher.

(U) A multi-year contract was let with Colt's, Inc. in FY 1971 with first delivery in February 1972. The second portion of the multi-year contract was obligated in September 72, for a quantity of 20,000 launchers. The third year of the contract will be definitized early in FY 1973.[59]

Machine Gun, 7.62mm, M219 (M73/M73A1)

(U) The M219(M73A1) Machine Gun is a lightweight, air-cooled weapon used primarily as a coaxial gun on tanks. It has a short receiver, is recoil operated, and is fully automatic. It is chambered for the 7.62mm NATO cartridge and fires at the rate of 550-600 rounds per minute. The M219(M73A1) is belt-fed from either the right or left side. The weapon features a quick change barrel with fixed headspace and can be fired using the electrically operated solenoid or the manual firing trigger. It utilizes the open bolt principle to preclude cook-off.[60] The M219 is the latest configuration of the M73 type machine gun and it is identical to the M73A1 except for a new feed cam which increases the reliability of the weapon although slightly decreasing the rate of fire.[61]

(U) It is used on the following vehicles which are in Europe:

a. M60/M60A1 Tank, Combat

b. M728 Vehicle, Combat, Engineer

c. M551 Armored Reconnaissance Airborne Assault Vehicle (Sheridan).[62]

(U) Prior to FY 1971,this weapon was manufactured by Springfield Armory and General Electric Company. Current production of 975 weapons (FY 1971 program) is being accomplished by Rock Island Arsenal (RIA) at a cost of $4.5 million. First production deliveries from RIA occurred in February 1972. Production is scheduled to continue through April 1973.[63]

---

[59] 1972 Annual Summary, DRP, p. 3.

[60] Ibid., p. 4.

[61] Information Brief dtd: 14 Sep 71, Wpns & Minit Sys Div, subj: MG 7.62mm M73/M73A1 and M219.

[62] Ibid.

[63] 1972 Annual Summary, p. 4.

Machine Gun, 7.62mm, M60

(U) The M60 Machine Gun is a general purpose weapon, capable of being fired from various mounts and by holding it like a rifle. It can be fired from a built-in bipod, the M122 tripod mount, from the hip or from the shoulder in a standing, sitting, or prone position. The gun is a lightweight, gas-operated, air cooled, linkbelt fed machine gun with a firing rate of approximately 550 rounds per minute. It employs a quick change barrel chambered for 7.62mm ammunition. Its primary use is for ground operations although modified versions are used on UH-1 helicopters in armament subsystems mounted outside the helicopter or in cabin doorways as a protective weapon.[64]

(U) The first production contract for the M60 was awarded to Springfield Armory in September 1957 with the first significant quantity deliveries to the field in January 1960. Since that time Maremont Corporation, New England Division has been the sole producer.[65]

(U) In March 1972, DA initiated a reprogramming action, subject to Congressional approval, for 4500 M60 machine guns at a cost of $3 million.[66] However, OSD recommended that the number be upped to 7500 at a cost of $5.1 million. The reason for the increase was to provide continuity of production through the FY 1973 funded delivery period, thus avoiding a production break.[67] The contract was awarded to Maremont Corporation with deliveries scheduled to begin in December 1972 and to continue at a rate of 500 per month through February 1974.[68]

Machine Gun, Caliber .50, M85

(U) The M85 Machine Gun is a short receiver, air-cooled,recoil operated, .50 caliber weapon, specifically designed and developed for use in the interior of armored vehicles. Special design features include a short receiver, a dual rate of fire (450 rpm for anti-personnel and 1050 rpm for anti-aircraft), a quick change barrel with fixed head space, right or left hand feed capability, and manual and/or electric firing. The weapon is designed to fire from the open bolt position thereby reducing the possibility of cook-offs.[69]

---

[64] 1972 Annual Summary DRP, p. 5.

[65] Ibid.

[66] Director's Sig/Act Rep DRP 13 Mar - 17 Mar 72, subj: MG 7.62mm, M60.

[67] Director's Sig/Act Rep DRP 3 - 7 Apr 72, subj: MG 7.62mm, M60.

[68] 1972 Annual Summary DRP, p. 5.

[69] Ibid., p. 6.

(U) Procurement of the M85 Machine Gun is based upon requirements for the Combat Engineer Vehicle and the M60 series tanks. Prior to FY 1971, production of this item was accomplished by General Electric Company at the former Springfield Armory facility. Current production of 1626 weapons at a cost of $8 million (FY 1971 program) is being performed by Rock Island Arsenal (RIA). Initial production deliveries were made by RIA in April 1972. The arsenal will build up its production rate from 10 to 100 weapons per month and continue through February 1974.[70]

(U) This particular gun has been a problem item. The following report indicates part of this problem: It would appear that there is an overbuy of M85s due to a reduction in vehicle production of approximately 400 each. However, information received from the Item Manager at WECOM indicates that the washout rate on this gun during overhaul is substantially higher than anticipated. Consequently, the seeming overbuy will be absorbed during overhaul.[71]

Vehicle Rapid Fire Weapon System (VRFWS) Successor (Bushmaster)

(U) The Bushmaster is a new automatic weapon system for mechanized and armored units. The system, consisting of gun, feed and ammunition, is envisioned as a 20 to 30mm rapid fire weapon with five types of ammunition. It will constitute the primary armament on the Mechanized Infantry Combat Vehicle (MICV).[72]

(U) On 12 November 1971, the source selection authority for acquisition of the VRFWS-S (Bushmaster) was redelegated from the CG, AMC to the CG, WECOM.[73] The Project Manager's office prepared an austere development plan recognizing that prospective contractors had developed hardware independently, and were at a point equivalent to final testing of the contract definition stage. Contracts were awarded in May 1972 for validation of the independently developed hardware in anticipation of a forthcoming full-scale development phase. Awards were made to AAI Corp., Philco-Ford and General Electric Corp. on a firm-fixed price basis for concurrent development of competitive systems. The resulting weapons will be subjected to competitive testing (shott-off) for selection of the best candidate for further development.[74]

---

[70] Ibid.

[71] Director's Sig/Act Rep DRP dtd 5-9 Jul 71, subj: Requirements for MG, Cal-50 M85.

[72] 1972 Annual Summary DRP, p. 7.

[73] Ltr AMCRP, to CG, WECOM, signed by GEN Miley dtd 12 Nov 71, subj: Delegation of Source Selection Authority for Acquisition of VRFWS-S.

[74] 1972 Annual Summary 1972, DRP, p. 7.

245-082 O - 77 - 7

Protecting the Fuze Base (Ammunition)

(U) The most critical problem in the production of fuzes is the availability of equipment and skilled craftsmen to manufacture precision parts and assemblies in the United States. The shortfall of production capacity in this area caused extensive use of imported parts from foreign sources during the build-up and peak production periods for SEA, 1965-1968.[75]

(U) Pillars, posts, plates, pallets, balance wheels and pinions were the principal parts being imported, although pinions posed the most critical problem. During the 1965-1968 period, General Time used imported parts at all their plants except one (Westclox at LaSalle, Ill.)[76]

(U) Protecting the fuze base is aimed at one primary concern, and that is the actual capacity to meet the production requirements for limited or general war. In the context of limited war, as has been referenced earlier, the SEA buildup period encountered serious problems in placing contracts and obtaining deliveries of fuzes containing clock timing mechanisms and safing and arming devices.[77]

(U) In October 1966, a comprehensive study was initiated to determine the principal reasons for the difficulties and to identify corrective measures. This study, conducted with the assistance of the Departments of Commerce and Labor, was concluded in April 1967. Subsequently, portions of the study have been updated. The most recent update pertaining to critical components of fuzes was completed in September 1970.[78]

(U) The studies indicated that the clock and watch industries in this country had been on the decline since 1948 and may actually disappear in 1976. Also, the studies were able to prove that monthly mobilization requirements exceeded the capability of our domestic base.[79]

---

[75] Memorandum AMCRP-WD, thru DCGMA for DCGAMC dated 26 Aug 71, subj: Hamilton Watch Co. (in AMCHO files of DRP).

[76] Ibid.

[77] AMCRD-W-AMCDMA dated 12 Aug 71, subj: Release of the FY 72 Fuze Program (in AMCHO files of DRP).

[78] Ibid.

[79] Ibid.

(U) Logically, on the question of whether to depend on a foreign or domestic base, it was decided to safeguard and expand the domestic base. Consequently, AMC recommended the following actions: (1) Exception 16 for precision components be authorized for the FY 72 fuze procurement program to protect domestic base from further erosion from imports; (2) Precision parts and subassemblies be stockpiled; (3) Equipment to manufacture precision components be stockpiled.[80]

(U) These actions were approved by the Assistant Secretary of Defense and authorized for implementation with the FY 72 fuze procurement program.[81]

Small Caliber Ammunition Modernization Program (SCAMP)

(U) The major emphasis, since FY 1969, has been directed toward a concept design, feasibility studies and contracting actions for the acquisition of a prototype module to deliver 900 5.56mm rounds per minute on a continuous basis. The module consists of several submodules including case, bullet, primer insert, load and assembly, packaging primer manufacture, component transfer, process quality control and ballistic test.[82]

(U) These submodules are designed to be connected and automatically monitored to receive raw material and hold the material in a captive state throughout the processing, fabrication, assembly, and packaging.[83]

(U) FY 1972 was aimed at qualifying the performance of the first prototype submodule, the cartridge case. The contract for the submodule is a cost plus incentive fee (PIF) contract with Gulf and Western Industries. There are three phases through which the submodule must pass before acceptance.[84]

(U) Phase I is a continuous eight-hour test with average performance of 900 pieces per minute. Phase II is a continuous thirty-two hour period (four 8 hour days) at an average performance of 900 pieces per minute. Phase III involves dismantling, transporting to Twin Cities AAP and the installation and proving out of the performance under AAP personnel control.[85]

---

[80] 1972 Annual Summary, DRP, p. 9.

[81] Ibid.

[82] Ibid., p. 10.

[83] Ibid.

[84] Ibid.

[85] Ibid.

(U) Phase I met with delays,and testing that had been scheduled for August 1971 did not begin until January 1972. Despite continued efforts of contractors, the objectives of Phase I could not be met. The problems included line synchronization, tool breakage, and retention clip strength. Equipment modifications must be made and a projected Phase I completion date of December 1972 is projected.[86]

(U) The other submodules are also experiencing difficulties, with the exception of the packaging submodule which was deemed satisfactory in terms of potential savings it represented if installed in present ammunition manufacturing lines.[87]

(U) Future SCAMP plans call for the purchase of nineteen modules to serve the mobilization base requirements for 5.56mm, 7.62mm, and Cal. 30 ammunition.

Collective Protection Equipment, CB, Expansible Van Truck, Trailer-Transported, M14.

(U) The initial procurement programs (FY 71 and FY 72), for subject item were cancelled for the following reasons: High unit costs over previous estimates caused by need for development of TDP for, and procurement of, modification kits and air retention liners; added cost to modify the expansible van truck (EVT) to receive the M14 collective protection equipment and deletion of the FY 1973 five ton truck program that deprived the Army of the EVT's in which the CPE was to be installed. The requirement to provide personnel protection against airborne toxic agents in command post vans has been deferred pending development of the modular collective protection system and cost effective analysis of each system.[88]

Shelter System, Collective Protection, CB, Inflatable, 10-Man, Trailer Transported, M51.

(U) A multi-year contract was awarded on 20 June 1972 for the initial procurement of this item. This system is designed to provide chemical-biological collective protection to as many as 10 individuals with the system being used as a command post, battalion aid station, air operations center, communications center, rest and relief station, or other general purpose use.[89]

---

[86] Ibid., p. 11.

[87] Ibid.

[88] FY 72 Annual Summary DRP, p. 15.

[89] Ibid., p. 16.

Procurement of Bombs and Related Components

(U) ASD(I&L) Memorandum, November 15, 1971, directed transfer of procurement responsibility for general purpose bombs and related components from the Army to the Navy with an effective date of 1 July 1972.[90] On 23 May 1972, ASD(I&L) amended the 15 November 1971 Memorandum and deferred the transfer for one year. The increase in the demand for bombs in SEA necessitated the change.[91]

Cartridge, 105mm Discarding Sabot-Target Practice (DS-TP) M724

(U) Cartridge is a British developed training round, L45A1, that matches the 105mm kinetic round. USAMC requested TECOM conduct a military potential test of the UK practice round and upon completion, the military requirement emphasized that there is no other practice round or standard round which approximates the high velocity and flat trajectory of the APDS-T kinetic round. The problem of using the standard APDS-T round for practice is the extended range fans which are required in addition to the round cost. Consequently, tank crews have not been afforded the opportunity of firing sufficient numbers of this type of ammunition to become proficient in techniques required to assure first and subsequent round hits with APDS-T ammo during combat. Department of the Army acknowledges validity of a requirement for adoption of the item, CONARC states a valid requirement exists and the L45A1 be considered for procurement and inclusion in the Army inventory.

(U) The UK technical data package (TDP) has been obtained for conversion into US Standards. A limited quantity of the UK produced round has been procured for product improvement of the M60 series tank and establishing training procedures. Translation of the UK TDP currently in progress and receipt of first US production planned for March 1974.[92]

2.75 Inch Rocket System for FY 72

(U) During Fiscal Year 1972, several important events and decisions occurred that will have significant influence on future management and technical aspects of the system. Among the more important events were: resolution of multiple commands in logistical management of launchers; adoption of a new dual purpose warhead; and publication of a Tri-Service Motor Study.[93]

90
AMCRP-WD Memorandum for DRP dtd 7 Dec 71, subj: Consolidation of General Purpose Bomb Responsibility Under the Navy, Joint Logistics Review Board Recommendation AM-14.

91
FY 72 Annual Summary DRP, p. 21.

92
Ibid., p. 12.

93
Ibid., p. 13

Logistical Management of Launchers

(U) Prior to FY 1972, performance of management functions for 2.75 Inch Rocket Launchers was accomplished thru three USAMC Major Subordinate Commands; USA Munitions Command, USA Missile Command, and USA Weapons Command. The Munitions Command functions included procurement and production of Air Force and Navy type launchers. The Missile Command functions included National Inventory Control Point (NICP), National Maintenance Point (NMP), and procurement and production functions for Army launchers only. The Weapons Command function was restricted to budgeting for Army launchers as PEMA Secondary items.[94]

(U) After a thorough study and analysis of the launcher management and overall small free rocket situation, HQ USAMC issued a policy statement regarding these items. The basic policy as issued, is that Missile Command has life cycle responsibility for all rockets. However, life cycle management upon discretion of CGAMC may be assigned to USA Munitions Command on an exception basis when an item is low cost, high density and distributed thru the same logistics system as other conventional ammunition items. Launcher management for the 2.75 Inch Rocket System remained with USA Missile Command. In addition, USA Munitions Command was to transfer Air Force and Navy launcher procurement functions to USA Missile Command, while the USA Weapons Command was to transfer budgeting functions to the Missile Command. The above cited changes were effective 1 July 1972. The Munitions Command retained management of 2.75 Inch Rockets.[95]

Dual Purpose Warhead

(U) A new dual purpose warhead for the 2.75 Inch Rocket was introduced for combat evaluation in SEA. This warhead permits increased versatility when operating in an armor threat environment, since it has both anti-armor and anti-personnel capabilities.[96]

Tri-Service Motor Study

(U) Results of a study concerning evaluation of candidates for a single tri-service motor for the 2.75 Inch Rocket were published in June. The Project Manager had been tasked by the Deputy Assistant Secretary of Defense for Production Engineering and Materiel Acquisition to develop cost and effectiveness information on Army, Air Force and Navy candidate motors against stated service requirements

---

[94] Ibid., p. 13.

[95] AMCRP-W, dtd 31 Jan 72, subj: AMC Policy - Mgmt of Small Free Rockets, signed by GEN Miley.

[96] 1972 Annual Summary, DRP, p. 14.

for low and high speed aircraft. Overall indications of the study were that it is technically feasible to provide a single 2.75 Inch Rocket motor for use on both high and low speed aircraft.[97]

(C) However, the projected peacetime consumption during the FY 73-79 timeframe is such that development/production is not economically practicable. The primary recommendations resulting from the study are: (1) That the MK/4MK40 motors be continued as the Tri-service Standard; (2) That the Air Force SR-105 Motor be procured to meet Air Force PAVE ROCK requirements.[98]

FY 72 Production Base Support Program

(U) The total approved value of the ammunition production base support program for FY 1972 was $236,600,000 consisting of one hundred and sixty-eight projects. Provision of production facilities (P4910) totalled $198,100,000 consisting of seventy projects for modernization and production support. Layaway of industrial facilities (P4920) totalled $11,700,000 consisting of fifty-five projects. Production engineering measures (P4930) totalled $26,800,000, consisting of thirty-eight projects. Prior year adjustments, both increases and decreases, involved twenty-nine projects.[99]

(U) The Modernization Program accounted for the largest single dollar value for the year utilizing $141,715,000 of the total program.[100] The problems associated with the program to modernize the ammunition production base in the beginning of FY 1972 were recognized as follows:

(U) Technology - Some of the new manufacturing processes to be employed will require advanced engineering development and the non-availability of such technical data could delay the program.[101]

(U) Programming and Processing - The current system of program planning, program development, budgeting, and processing for project approval, requiring three to four years could be a deterrent to the timely completion of the program.[102]

---

[97] Memorandum AMCRP-WD thru DRP for DCGMA dtd 3 Jul 72, subject: PROMIS Monthly Report - 2.75 Inch Rocket System

[98] Ibid.

[99] 1972 Annual Summary, DRP, p. 20.

[100] Ibid.

[101] AMCRP-WK Memorandum thru DCGMA for DCGAMC dtd 3 Aug 71, subj: The Ammunition Production Base Modernization Program.

[102] Ibid.

(U) Cost Estimate - Project requests forwarded for approval require the concurrence of the Corps of Engineers. The use of empirical formulas by the Corps of Engineers for the development of cost estimates for project approval is not completely acceptable by higher authority. Better means of developing costs for budget development/ program execution require investigation.[103]

(U) Another problem with this program was the lack of authority granted to AMC for project approval which caused long administrative delays.[104] However, command group emphasis on this program and communication with DCSLOG produced some changes.

(U) Intensive and accelerated management of the Production Base Support Programs resulted in the release of 98 percent of the FY 1972 program approved projects by the end of December 1971.[105]

(U) The Office of the Deputy Chief of Staff for Logistics released, by letter dated 24 April 1972, additional delegation of authority to AMC whereby project approval for provision of production facilities (P4900) up to $2,000,000 could be granted for COCO and GOCO plants. Layaway and Production Engineering Measures have unlimited AMC approval authority.[106]

Missile Systems

(U) The Army and customer approved programs for missiles awarded during FY 1972 amounted to $526.5 million which was apportioned as follows: $488 million for missile systems, $6.3 for production base, $7 million for transportation, and $31.5 million for repair parts. The carryover into FY 1973 totaled $35.6 million, making a total program available to MICOM in FY 1972 of $562.1 million.

(U) During FY 1972, the depot maintenance program for missile items totaled $33.2 million. Of this amount, $27.3 million was for MICOM managed items, and $5.9 million for other commands' support of missile systems. Two of the more significant accomplishments during this period were the overhaul of 786 HAWK missiles, and 12 NIKE HERCULES systems.

---

[103] Ibid.

[104] Letter, GEN Miley (CGAMC) to GEN Heiser (DCSLOG) dtd 22 Nov 71, p. 2 from AMCHO files of DRP.

[105] 1972 Annual Summary DRP, p. 20.

[106] Ibid.

(U) TOW Weapon Systems. A program in the amount of $62.6 million was initially released to support the TOW weapons system in FY 1972. This was later reduced to $55.047 million, due to reductions realized in the negotiations of finalized contractual actions on missile and launcher two step multi-year competitive, firm fixed price contracts.[107]

(U) Two major multi-year firm fixed price competitive contracts were awarded. One in November to the Hughes Aircraft Corporation for the first year buy of TOW missiles was valued at $25.5 million. The other contract to Emerson Electric Company for the first year buy of launchers was valued at $5.6 million. Each of the contracts were four-year, multi-year contracts with options and provisions for follow-on buys.

(C) The TOW program, prior to 31 December 1970, was based on an initial procurement objective of 735 launchers to be produced under contract with the Hughes Aircraft Company. Last deliveries under that contract were scheduled to be made in November 1972.

(C) On 31 December 1970, OSD directed the Army to expand the TOW program to 1,085 launchers, and included funds in the FY 1972 budget for this purpose. The need for a new contract for TOW production was recognized at that time. However, the quantitative requirements were uncertain since the impact of the Selected Analysis Anti-tank (McFadden) Ad Hoc Committee results were unknown. By 10 May 1971, the committee's efforts were sufficiently definitized for ACSFOR to issue guidance to AMC establishing a requirement "for approximately 1,400" additional launchers in order to attain an authorized acquisition objective of 2,162.

(U) During May and June 1971, ASA (I&L) and AMC conducted discussions as to the preferred method of procurement of the additional launchers. On 1 July 1971, ASA (I&L) directed AMC to solicit bids for formal advertising. AMC issued invitations for bids on 30 July 1971.

(C) AMC advised that a possibility existed for an interruption in the future delivery of launchers. Such an interruption would stem from the increased administrative time required by the method of procurement directed, and from the lead time required by any new contractor who might win the bid to gear for production. The estimated length of delivery interruption was four to twelve months, beginning at the end of the current contract (November 1972, launcher 735).

---

[107] Fact Sheet by LTC Guy, 16 August 1971, Subject: Update on TOW Launcher Procurement (U).

(C) The impact of the potential delivery interruption on the equipping of units is shown on Chart No. 2 . Basically, it will mean that there will be a delay equal to the length of delivery interruption in providing all war reserves, and half of the maintenance float to USAREUR and in equipping the other units as indicated.

(C) The increase in launcher basis of issue from 12 to 18 for USAREUR and REFORGER battalions as a result of the McFadden study contributed to the deployment interruption. Prior to the basis of issue increase, AMC was forecasting a four-month break in production deliveries, but no break in the deployment to units. Unit TOE requirements during the four-month production break would have been satisfied from a combination of war reserves and depot stocks built up as a result of deliveries from the contractor (30 per month) exceeding deployment to units (18 per month).

(C) Phase II of the USAREUR equippage plan, providing 12 launchers for each of 24 battalions, was completed in March 1972. One hundred and forty-one launchers, 1,600 missiles, and 15 R&D model night sights were shipped to Southeast Asia in June 1972.

(C) Foreign sales cases were accepted this year from Iran, Germany, and the Netherlands. The various cases included 12,500 missiles, 400 launchers, and ancillary equipment with an estimated value of $73 million. The return of investment approximated $10.6 million.

(C) Improved HAWK. Three significant actions took place in FY 1972 to the Improved HAWK Missile System: it was type classified Standard A; the initial delivery of the completely converted sets of the Improved HAWK Ground Support Equipment was accomplished and issued to the training base; and the successful completion of the reliability demonstration was realized. Following the latter achievement, the FY 1972 PEMA program of $89.5 million was released and the third production buy was consummated.

(C) AMC personnel made a representation to DA on 21 March 1972 concerning the production capability to support the Improved HAWK program.[108] Several follow-on action items resulted from this presentation. One was to explore in greater detail the production capabilities of the major Government Furnished Equipment (GFE) producers for the Improved HAWK System. Included in the study of the GFE producers was information associated with plant capacity method of procurement, lead time and funding. The more relevant producers investigated included International Manufacturing Company, Inc. (producers of motor metal parts); Aerojet Solid Propulsion Corporation

[108]Letter, AMCRP-MA to HQDA (DALO-IL) dated 19 May 1972, Subject: Production Capability to Support the Improved HAWK Program.

CHART 2
85

FORCE	REQUIREMENTS TOE	MAINTENANCE FLOAT	WAR RESERVES	TOTAL	DISTRIBUTION OF 735 LAUNCHERS [1]
UNITS EQUIPPED BEFORE PRODUCTION BREAK					
CONUS Training Base	91	3	N/A	94	91
USAREUR	432	44	180	656	452
REFORGER	72	7	30	109	75
Berlin Brigade	18	2	7	27	19
82d Airborne Division	54	6	67	127	56
TRICAP Tests	N/A	N/A	N/A	N/A	6
Contingencies [2]	N/A	N/A	N/A	N/A	36
SUB TOTAL	667 [1]	62	284	1,013	735
UNITS NOT EQUIPPED UNTIL AFTER PRODUCTION BREAK					
Europe Oriented (2 + 10) & TRICAP	252	24	93	369	
TF 72	54	6	22	82	
Five Reserve Brigades & Rndt Bns	144	14	37	195	
Composite Division (unmanned)	90	9	25	124	
Korea - 1 Brigade/25th Division	18	2	28	48	
CONUS Other (101st & 2d Infantry)	102	11	127	240	
PACOM (25th Infantry (-)	36	4	51	91	
SUB TOTAL	696	70	383	1,149	
TOTAL	1,363	132	667	2,162	

1/ The TOE total of 667 is satisfied by end of production, November 1972. Shortfall comes from maintenance float and war reserves.

2/ Unprogrammed requirements - operational tests, loan to foreign countries, additional launchers for TRICAP.

(missile motor loading); Northrop Corporation (manufacturer of wings, launchers, and loaders); Picatinny Arsenal (supplier, thru competitive procurement, of warheads and safety and arming devices); and the assembly facility at Red River Army Depot. From the findings of this investigation, and the information previously furnished on the prime contractor, emphasis could be placed on the Foreign Military Sales of Improved HAWK without severely impacting the United States requirements.

(C) Another follow-on action involved the necessity for the determination and findings (D&F) for fiscal year 1973 Army/USMC procurement to be augmented to include foreign customer requirements. The DGF was revised accordingly, and was submitted through DA to ASA-IL. Concerning a third follow-on item, options were to be included in the FY 1973 contracts to provide for prospective foreign customer requirements. Internal programming made it possible to obtain the maximum U.S. capability requirement earlier than originally planned. A proposal to accomplish this item was received from the contractor on 8 May 1972. Negotiations were underway, and it was expected that a contract would be signed in June 1972.

(C) As indicated in the presentation on 21 March 1972, there was serious concern about the financial status of Applied Devices Corporation, manufacturer of the AN/TPQ-29 Trainer. Past operating losses had a significant impact on the corporation's finances. A plan for realignment of finances was developed by the corporation, and represented a series of events scheduled over the following months. As these materialized, the financial structure would significantly improve. The Missile Command evaluated the plan, and the Army's risk, and determined it to be in the best interest of the U.S. Government to go ahead and enter into a contract with Applied Devices, for the manufacture and application of Simulator Mod kits.

(C) PERSHING Weapon System. Under the FY 1972 procurement program, the PERSHING Weapon System was type classified Standard A in July 1971.[109] The FY 1972 and FY 1973 Advance Procurement Plan was approved by OASA (I&L), 21 July 1971.[110] Authority to negotiate approximately 113 procurement actions in FY 1972 at an estimated cost of $54.9million covering missiles, trajectory accuracy prediction system, missile life extension, modification kits, repackage of the power station and related supplies, parts, technical data and publications was provided to AMCRP-M, 8 November 1971.[111]

---

[109] USAMC Technical Committee Action (S) 8851 Meeting 12-71.

[110] 1st Ind SAOAS(I&L)-PO to AMC dated 21 July 1971, Subject: PERSHING Advance Procurement Plan - FY 72 and FY 73.

[111] 1st Ind SAOAS(I&L)-PO to AMC dated 8 November 1971, Subject: Request for Approval of Revised Class Determination and Findings (D&F) for PERSHING Weapon System (PEMA).

(C) Four contracts for PERSHING hardware and industrial engineering services in the amount of $61.0 million were awarded 30 December 1971 by the Missile Command to the Martin-Marietta Corporation, the Bendix Corporation, and the Singer Company, Kearfott Division. Two contracts with Martin-Marietta provide for procurement of missile hardware, $38.1 million FPI Contract and a CPAF industrial engineering service contract in the amount of $7.0 million. An FPI contract with Bendix procures the guidance and control system, $13.7 million. Hydraulic actuator's are being procured from the Singer Company, in amount of $2.2 million. RDT&E effort on the trajectory accuracy prediction system was brought to a close and procurement plans are being cancelled.

(C) The PERSHING Alternatives Plan, a detailed analysis, was prepared by the Project Manager's Office with inputs from other agencies, including USAREUR and USACDC, to determine future PERSHING Weapon System requirements in the late 1970's and beyond. The study titled "PERSHING Alternatives Plan"[112] was submitted to DA through USAMC in July 1971 with recommendation for approval.

(C) In October 1971, DA approved RDT&E effort for the PERSHING II Weapon System.[113] The PEMA requirements were addressed in the FYDP Procurement Annex (POM) FY 1974 - FY 1978.[114] DA stated that Department of Defense Directive 5000.1 Acquisition of Major Defense Systems would apply and indicated that the timely preparation of a system development plan and draft development concept paper would assist in presenting this program to the Department of Defense and the Congress. The system development plan, draft development concept paper and materiel need had been prepared and were staffed in AMC HQ for submission to DA.

(C) The total production quantity for initial replacement of fielded PERSHING missile re-entry vehicles was estimated at 260 with associated ground support equipment kits at an estimated cost of $131.9 million PEMA, Option 1. Additional missile quantities for Option 2 would raise the PEMA cost to $289.5 million. This cost did not include the PEMA support through subsequent operation of the system and required modifications. The production hardware buys were as follows: ($ million)

---

[112] PERSHING Alternatives Plan, Volumes 1, 2, and 3, dated July 1971.

[113] DA Message 182010Z Oct 71, Subject: PERSHING Improvements (PERSHING II) Development Program.

[114] FYDP Procurement Annex FY 74-78 POM dated 30 May 1972, as revised, 2 June 1972.

	FY 1978	FY 1979	FY 1980	FY 1981	TOTAL
Option 1					
Quantity (Re-entry vehicles)	90	100	70		260
$	55.870	44.740	31.310		131.920
Option 2					
Quantity (Re-entry vehicles)	90	100	70		260
Quantity (Complete missiles)	40	45	40	45	170
$	94.010	86.860	68.400	40.230	289.500

(U) SHILLELAGH. The SHILLELAGH Project Office was activated on 10 May 1964 by General Frank S. Besson and deprojectized on 30 June 1971.

(U) During FY 1972, funds in the amount of $86,500 were released to support the SHILLELAGH Weapons System. These funds were to cover modifications to the SHILLELAGH Trainer.

(U) DA requested information as to the feasibility of conversion of the SHILLELAGH Heat Missiles to Training Missiles by replacing existing Heat Warheads with Training Warheads.[115] The request included a requirement for the cost estimate of conversion in quantities of 6,000, 9,000, and 12,000, respectively. A shortage of Training Missiles was forecast whereas Heat Missiles were slightly in excess of the authorized acquisition objective as it existed.

(U) The conversion was determined feasible, and the estimated cost and related information was provided by MICOM. However, it was recommended that consideration be given by DA/OSD to utilize the existing Heat Missiles for annual service practice firings where practicable, in lieu of Training Missiles. This would save the cost of conversion, and at the same time, leave the Heat Missile inventory intact without degradation for any requirement which might have arisen.

(U) Should the conversion be decided upon by DA, it would be accomplished at Anniston without any impact on presently scheduled workload. The Shillelagh Beacon Filter Modification currently underway at Anniston was scheduled for completion in December 1973. Release of the conversion authorization in November 1972 would enable procurement/production of the training warheads for delivery in an estimated 13 months lead time, with the conversion pick-up on the line in January 1974.

[115] Fact Sheet, 28 June 1972, by Mrs. Webster of Surface to Surface Branch, subj: SHILLELAGH Missile System Conversion.

(U) LANCE Program. During FY 1972, a number of significant program milestones were achieved, one of which was the completion in March 1972 of the LANCE ET/ST flight test program. Following TECOM's risk analysis statement release in April 1972, the LANCE In-Process Review (IPR) (Development/Production Validation) was conducted on 9 May 1972. Based on the IPR, the Board recommended forwarding the minutes and type classification recommendation through AMC to DA for approval. The IPR minutes and type classification of the LANCE Missile System Standard A (less nuclear warhead and guided missile test set) were approved by DA on 23 May 1972. The same authority also approved extension of the limited production authority for the nuclear warhead and test until 30 June 1973.

(U) As a result of the type classification approval, the FY 1972 contract options for assembly and delivery of the end items (contracts for procurement of long lead time items were awarded in the first and second quarters of FY 1972) in the amount of $20.8 million and were executed on 9 June 1972.

(U) The ET/ST program for the nuclear warhead, because of the warhead design problem that surfaced in June 1972, was extended to January 1973 with type classification Standard A planned for April 1973.

(U) Although no firm letters of offer had been received from Foreign Military Sales customers, the potential buys expected to exceed US procurement requirements. Firm letters of offer were anticipated during FY 1973. Additionally, approval of the development planning for the LANCE non-nuclear warhead was anticipated in FY 1973.

(C) NIKE HERCULES. The development and deployment schedule of the SAM-D Missile System left the Army no other alternative but to continue to support the NIKE HERCULES. Extension of the system deployment through the mid-1980s caused support problems which required extraordinary efforts to insure continuation of high-level effectiveness.

(C) Initial deployment of NIKE HERCULES visualized phaseout in the 1970s with the introduction of the replacement Air Defense system.[116] The extension of the HERCULES life until 1985 presented a unique administrative procedural problem.

(C) To continue a high level of operational readiness, a "buy-out" of repair parts was required since manufacturers were unwilling, in many

---

116 Letter, CG, AMC to Chief of Staff, USA, Subject: Future Support of NIKE HERCULES (U), (no date on reading file copy).

cases, to produce the obsolescent parts needed by the NIKE HERCULES missile system. Cannibalization of excess missiles and equipment was to be used to minimize the buy-out. To support this buy-out, for both the US Army and foreign customers, approximately $14 million was included in the Army Stock Fund and PEMA secondary item apportionment requests.

(C) Contractor engineering support, originally planned to be phased out, would be required to an increased level to insure continued effectiveness and reliability, as well as redesign of components for producibility; even though the system was out of production. To cover the Fiscal Year 1973 requirement, $1.2 million OMA (including $0.3 million for publications) and $0.9 million PEMA funds were requested. Subsequent years required funding at approximately $2.0 million per year through Fiscal Year 1976, and at $1.0 million level for Fiscal Years 1977 and 1978.

Forward Area Alerting Radar (FAAR).

(U) During a formal review held on the 1st and 2d of May 1972, USAMC, USACDC, and USCONARC agreed that the FAAR concept was sound.[117] The radar performed the basic function of alerting forward area air defense units, and essentially met the requirements of the draft Materiel Need. However, based upon tentative results of an Operational Test and Evaluation (OTE) then being conducted, USACDC had some reservations concerning the utility of the Target Alert Data Display Set (TADDS), even though it met the requirements of the draft Materiel Need. Results of the Initial Production Test (IPT) indicated that the FAAR System met the technical requirements, although a number of deficiencies had been identified affecting reliability and maintainability. The testing effort was not then complete, but the latest results indicated that reliability, as represented by the latest production equipment, was improving. It was expected that with the installation of certain minor modifications, an acceptable level of reliability and maintainability could be reached.

(U) Sanders Associates, the FAAR contractor, continued to be delinquent in hardware deliveries. They had delivered 17 radars through the close of FY 72, which was 16 less than the cumulative contract schedule requirements called for. The quality was improving, and deliveries were predicted to meet the need for training and deployment.

(U) The 90 radars and associated equipment in the process of being procured were sufficient to equip Europe, Korea, the training base, and two CONUS divisions listed on the deployment schedule. It

---

[117] Ltr, AMCPM-CVADS-T, dated 6 June 1972, from GEN Miley to Army Chief of Staff, Subject: Forward Area Alerting Radar (FAAR).

was estimated that Sanders Associates would complete deliveries of the radars by the end of March 1973. Based on the above, the course of action that appeared most reasonable was to continue the production contract through the delivery of the 90 radars and associated equipment, to complete the scheduled testing of production hardware, and to assure that reliability and maintainability problems had been satisfactorily resolved and deficiencies corrected.

Land Combat Support System (LCSS) Program

(U) Although the Land Combat Support System (LCSS) Product Charter was signed on 16 December 1968 by General Bunker, its effective date was 10 October 1968. It designated LTC Frank A. Matthews as product manager. The original deproductization date was scheduled for 30 June 1975, but actual deproductization was accomplished on 31 March 1972. As of 30 June 1972, the LCSS Program history was as follows:

(Unit $1,000,000)

Program Year	Qty	Value PEMA	Value (Mods Incl.)	Value RDTE	Value Total
Fiscal Year 1967/Prior	10	$13.6	(0)	$27.4	$41.0
FY 1968	5	10.9	(0)	3.9	13.9
FY 1969	7	18.5	(1.5)	7.8	26.3
FY 1970	16	29.7	(1.7)	6.8	36.5
FY 1971	6	16.7	(1.7)	2.0	18.7
FY 1972	-	3.5	(1.5)	2.0	5.5
FY 1973(est.)	-	5.3	(1.3)	2.0	7.3
Total	44	$97.3		$51.9	$149.2

(U) True to form, the problem of drastic and continual yearly program cuts by Congress and DOD in the LCSS area continued to handicap the normal progress of the system. The initial year programs merely covered the actual hardware cost thereby deferring cost of engineering and other indirect costs such as documentation, quality assurance, supply and technical manuals which were essential to the accomplishment of economical procurement and production of major item equipment and repair parts. Factors that impacted on the LCSS and tended to create problems included continually changing design, quantities, and location of supported Missile Systems. Unlike the other Missile Systems which have only to overcome normal problems due to changes in their own individual systems progress and configuration, the LCSS must adapt to encompass all changes in the systems being supported, SHILLELAGH, TOW, LANCE and DRAGON. At the same time, with each adaptation or change, care must be taken to assure no degradation to support of other systems being supported.

245-082 O - 77 - 8

(U) The total LCSS requirement remained at 44, all of which were on contract and 40 of which were delivered through FY 1972. Delivery of the remaining four was stretched out from the previously scheduled one per month to lessen the gap in production pending receipt of the FY 1973 program. The rescheduling was in keeping with RCA recommended stretchout due to deferment in release of the LANCE and DRAGON Supplementary Equipment Kits from FY 1972 to FY 1973. Stretchout would preclude necessity of "lay off" of trained technical personnel and need to rehire and retrain when the procurement of Supplementary Equipment Kits was released.

(U) The LANCE and DRAGON Supplementary Equipment Kits were initially programmed in the FY 1972 Budget. By Congressional Committee action, the DRAGON Kits ($4.4 million) were deleted from Fiscal Year 1972. The Kits were included in the FY 1973 budget submissions, but for a lesser dollar value of $4.0 million.

Surface Systems

(U) Some of the problems encountered in the vehicle and mobility equipment area during FY 1972 are described below:

(U) PEMA Budget. The FY 1972 budget request for 47 items managed by the US Army Mobility Equipment Command amounted to $137,300,000. Principal items ($5 million or more) included the following: Dump truck for Commercial Construction Equipment (CCE); Truck Mounted Firefighting Sets; Utility Elements (MUST); Cranes, 20-Ton (both Trk Mtd and rough terrain); Tractor ft, LS; and Forklift, 6,000 and 10,000 Lb Rough Terrain. The budget line "Items less than $500,000" consisted of 56 line items amounting to $21,500,000.

(U) Project RECOUP. Project RECOUP (Rebuild Components - Underbuy New Procurement) was an OSD-directed project based on a 1969 audit by OASD Comptroller for Internal Audit.

(U) After feasibility studies on, and tests of new 5-Ton trucks equipped with rebuilt axles, AMC authorized implementation of the program for rebuild and supply of Government furnished equipment axles for the December 1972 option quantity of the M809 Series 5-Ton trucks.[118] The axle rebuild line was set up at Red River Army Depot and production started in March 1972. First axles were delivered as Government furnished equipment to the contractor on 1 May 1972. In June 1972, the first 12 vehicles equipped with rebuilt axles rolled off the assembly line and were successfully tested and accepted.

---

[118] AMCRP-GL message, subject: Project RECOUP, dated 3 January 1972.

(U) The DCSLOG approved on 7 February 1972 the following actions: the recommendation to test the rebuilt 2½ ton axles to be furnished as Government furnished equipment for the FY 1974 programmed quantity of 1944 Series 2½ ton trucks; to discontinue recovery of further axles for RECOUP; and to retain the 5-ton axles not utilized in current production pending a firm decision regarding a FY 1973-1974 buy. The decision was made in April 1972[119] and cancelled the FY 1973-1974 program for the 5-ton truck. This caused DCSLOG to direct disposal of the unserviceable 5-ton axles for which no future requirements existed.

(U) M88 Recovery Vehicle. In July 1971, the Army indicated its interest in a diesel medium recovery vehicle (MRV) to compliment the tanks which were diesel powered. There was no diesel MRV to succeed the M88 planned in the immediate future. Such a replacement would have to await development, programming, and phased availability.

(U) A total of $2.6 million was released to the US Army Weapons Command to dieselize the M88, utilizing the Air-cooled, V-Type, Diesel, Super-charged 1790-2A(AVDS 1790-2A) engine.[120] This engine would be common to the engines currently used in the M60 series tank fleet. Also, it would enable the use of common fuels and improve logistics. The plan was to install the diesel at the time of the scheduled overhaul of the M88. It was estimated that to complete the fleet would take 15 years.

(C) A letter of offer accepted on 28 January 1972[121] by the representative of the Government of Iran offered an initial delivery of 55 M88's out of a total order of 176.[122] The remainder were scheduled to be delivered at the rate of 20 each month thereafter until completed. The schedules were recognized as firm commitments.

(U) XM 852 Program. This program was an outgrowth from the cancellation of the XM705. Also, this truck will fulfill a need for a 1¼ ton tactical truck of less complexity and cost than the M561. The current DA approved program is for a modified commercial truck which, along with the high mobility Gama Goat, will eventually replace the M37 Series, 3/4 ton Truck. XM705 trucks were continuing tests so that on-going studies could be completed for input into the XM852 specification.

---

[119] DALO-SUD-A message, Subject: Project RECOUP 5-Ton Axles, dated 14 April 1972.

[120] Ltr, dated 16 July 1971, AMCRP-GV, WECOM, Subject: M88 Recovery Vehicle Procurement Data (U).

[121] Message, 191545Z, 19 April 1972, from CG, USAMC to DA, Subject: IL Requirement for M88 Tank Recovery Vehicle.

[122] Director's Significant Action Report, Requirements and Procurements 14-18 February 1972.

(C) A two step invitation for bid scheduled to be issued in March 1973 was expected to result in a multi-year contract in September 1973 for a total of 29,024 vehicles. Procurement was planned as follows:[123]

Year	Amount in Millions	Quantity
FY 1974	* 8.3	24(Prototypes)
FY 1975	12.4	750
FY 1976	35.5	5,150
FY 1977	48.7	8,400
FY 1978	83.8	14,700
TOTAL	$188.7	29,024
Excise Tax	5.5	
Grand Total	$194.2	

*For testing of 24 prototype vehicles.

(U) DeLong Piers. A major lesson learned during the operations in Southeast Asia was the need for modern base development facility components such as the DeLong Piers. One of the most critical problems to arise in the 1965 buildup of forces in Vietnam was the lack of port facilities. At the onset of the conflict, millions of dollars were wasted as ships waited for months in inadequate harbors to unload cargo which was desperately needed by the military forces. This problem was alleviated by the acquisition of DeLong Piers. They were assembled at harbors in Vietnam and provided the needed docking facilities for unloading cargo from the large number of ships.

(U) To avoid a similar situation, the Army made plans to retrieve all the DeLong Piers in Vietnam as they became excess and store them in strategic locations for use in the event of future emergencies. During FY 1972, six of the pier barges had been mobilized, two of which had been sent to Charleston Army Depot for additional repairs. After the completion of the repairs, the barges were to be used in the offshore discharge of container ship exercise (OSDOC II) at Fort Story and ultimately stored at Charleston Army Depot and at Fort Belvoir, Virginia.

(U) Clean Air Act. Early in this fiscal year, AMC established the policy that all future production contracts and additions to existing AMC contracts for procurement of wheeled tactical and administrative vehicles as well as new replacement engines for existing vehicles would contain provisions for compliance with the Clean Air Act. However, in the interest of national security, EPA granted exemptions in February 1972 from meeting emission standared for 19,734 ¼ ton, and

---

123 Memo from Director of Requirements and Procurement to CG, AMC, thru DCGAMC, dated 4 Jan 72; subject: Status of the XM852 1½ Ton Truck Requirements.

21, 590 2½ ton vehicles which were being manufactured under existing contracts. In another certification, EPA approved a clean engine for the 2½ ton truck. This engine met the standards for calendar year 1973. Another "clean" engine was being tested for the ¼ ton truck. It was anticipated that it would be certified to meet 1973-74 standards by the end of 1972.

(U) Contractor Logistic Support. The GOER was selected as the military system to try out contractor furnished logistics support; and the US Army Tank-Automotive Command (TACOM) was tasked to develop and present a concept for such support. After a decision briefing for approval of the TACOM contractor logistic support, it was approved for implementation. The command was requested to commence negotiations for support in all theaters where the GOER was to be employed. By the end of this fiscal year, TACOM had prepared the scope of the work and had established milestones for implementation of the contractor logistic support test. Contract award was targeted for December 1972.

(U) M561 Program. The worldwide release decision was made on 30 December 1971. Consolidated Diesel Electric Corporation (CONDEC) continued the delivery of the M561 vehicle delivery to the Army, and as of 30 June 1972, 936 trucks had been deployed in USAREUR and 2021 vehicles had been deployed to CONUS. The vehicle was favorably received in the field and no major problems were reported.

(U) Retrofit of the first 4,400 vehicles produced continued to be accomplished at the Seneca, Letterkenny, Tooele, Red River, and Anniston Army Depots. As scheduled, delivery of the contract quantity of 14,275 vehicles was to be completed during July 1973.

Air Systems

(U) CH-54 TARHE. The last delivery of this helicopter, popularly known as the flying crane, rolled off the production line at Sikorsky during June 1972.

(U) Three international records were established by the CH-54 TARHE on 12-13 April 1972 at the Sikorsky plant at Stratford, Connecticut. In one of these, the payload/altitude record, the TARHE bettered the record established by the larger and more powerful Russian V-12 helicopter. The new record was for a payload of 15,000 kilograms (33,075 lbs) lifted to an altitude of 3,308 meters (10,850 feet) against the Russian record of 2,951 meters (9,681.7 feet) for the same payload.

(U) A new record time-to-climb to 3,000 meters (9,842 feet) was one minute, 21.9 seconds. The other involved the time-to-climb to 6,000 meters (19,684 feet) which was made in two minutes, 58.8 seconds. Former records in these two categories were previously held by the US Army.

(U) The above records were observed and monitored by the officials of the National Aeronautics Association, representing the Federation Aeronautique Internationale, the organization that certifies international aviation records. After the certification of the above records, the CH-54 helicopter became the holder of six international altitude records and three international time-to-climb records.

(U) Cobra AH-IG. Although the original specifications for this system included a requirement that fuel cells be able to withstand a 65-foot drop, the contract did not require a drop test. On 12 June 1971, the contract was amended to include a production drop test. This proved to be a wise decision on the part of the Army because on the first production drop test, on 17 September 1971, both of the two fuel cells being tested ruptured.

(U) Thirteen ships were delivered containing cells which were suspect. Five were located at Bell, Fort Worth, four at Fort Bragg, and four at Bell, Amarillo. This prompted the Army to inform Bell on 29 September that no additional ships would be accepted until the quality of the fuel cells had been resolved.[124]

(U) Bell Aircraft Corporation (BHC) proposed a solution to the problem which was accepted by AVSCOM. This acceptance came with the condition that certain cells out of certain lots would be drop-tested to insure that the cells were in accordance with government specifications. In subsequent drop tests made by BHC at the Uniroyal plant, the selected fuel cells successfully passed the test and the problem was considered resolved.

(U) The AMC Senior Procurement Review Board convened on 1 March 1972 to review the proposed cost-plus-incentive fee contract for the Improved Cobra Armament Program. It was approved on the same day after the CG, AMC concurred in the decision. This research and development contract was awarded on 31 March 1972 to the Bell Helicopter Company.

(U) CH-47 CHINOOK. For the sum of $125,000, Boeing proposed to design, fabricate, and install a two-point suspension system in one CH-47 Aircraft. The two additional cargo hooks were to be furnished as government furnished equipment.[125] Also, Boeing offered, at a cost of $50,000, to conduct flight tests to investigate the failure modes of the system. Wind tunnel tests indicated that failure of either hook

---

[124]Director's Significant Action Report, R&P, 4-8 October 1971, Mr. Maiers.

[125]Message from CGUSAMC/AMCRP-FA to DA/DALO-AVS, dated 10 May 1972 (1850Z), Subject: Boeing-Vertol Proposal for Two Point Suspension System for CH-47 Helicopter.

or certain sling leg failures when transporting external loads of less than 13,000 pounds, could possibly result in contact of the load with the aircraft fuselage and/or rotor system before the load could be released manually. If any of the failure modes were critical, transport of loads less than 13,000 pounds would be restricted to an airspeed of 75 knots. But, if none of the failure modes were critical, all external loads could be flown to airspeeds up to engine power limits.

(U) Another Boeing proposal was that for $12,500 they would design, fabricate and install an automatic release system in lieu of conducting the failure mode flight investigation. This system would automatically jettison the load in the event of a hook/sling failure. For an additional $65,000 Boeing would also fabricate and install a two-point system with automatic release in a second CH-47 aircraft.

(U) Accident reports related to the corrosion and fracture problem on the CH-47A aircraft caused the acceleration of the Integral SPAR Inspection System (ISIS). These reports attributed 95 fatalities to the blades. Pending availability of ISIS blades, the aircraft flight envelope was reduced from 130 to 110 knots, and from 33,000 to 31,000 gross weights. This reduction in the flight envelope resulted in the restricted use of the CH-47A aircraft.

(U) As an interim measure, CH-47A blades were replaced with modified CH-47B/C blades until the ISIS blades became available. This enabled return to the original flight envelope of the CH-47A fleet.

Battlefield Command Control System

(U) The Battlefield Command and Control System was established in May 1971, and included elements of the old Tactical and Strategic Communications Division and the STANO Electronic Warfare Division. Significant actions by elements of this division for this fiscal year are noted below:

(U) Combat Service Support System (CS_3). This is a rugged, transportable, and multi-functional computer system for the Army in the field.

(U) The ASA(FM) on 1 December 1971, specified four issues to be addressed prior to a proliferation decision: (1) Decisive comparison of CS_3 to the present system of DLOGS/PERMACAP as required by the original test plan; (2) A thorough examination of the present system to insure that upgrading the DLOGS-PERMACAP system is not equally effective, less expensive alternative; (3) A determination as to the tactical vulnerability of CS_3 which, in its existing configuration, was dependent on a single central processing unit; and (4) Assurances that CS_3 would not add additional personnel to the division or absorb strength from other critical areas within the division.

(U) On 14 December 1971, information on these four issues was furnished the ASA(FM) with the request that the extension of CS_3 to all active Army Divisions be approved. A series of meetings between the USA Computer System Command (CSC) and the GAO indicated that the GAO would not commit itself in advance on the adequacy of the CS_3 system or software development, but would continue to evaluate the system against those objectives established by the Army for the system.

(U) The FY 1972 Program for the expansion of CS_3 was deleted by Congress, but the Congressional Committee report did not curtail planning actions on the CS_3. A revised milestone chart was developed which called for the fielding of the CS_3 system in March 1973. The firmness of this schedule became questionable in view of subsequent developments. CSC presented to the Materiel Procurement Priority Review Committee (MPPRC) a FY 1973 program amounting to $15.1 million for expansion of the system. It was opposed by the Assistant Deputy Chief of Staff for Logistics (Programs and Budget). On 28 April 1972, the committee made the decision to delete CS_3 funds from the FY 1973 program and to include the funds in the FY 1974 program.

(U) Project J-7 (SCOPE PICTURE). During a trip to Europe in October 1971, Secretary of the Army Froehlke became convinced that the morale of our soldiers in Europe would be improved with the introduction of American television. Originally, the Air Force proceeded with a phased plan to provide the television coverage in Germany by 1974. Slippage in the program threatened to delay its completion until 1975 or later. In view of this situation, the Department of the Army agreed to accept responsibility for accelerating and completing the final phase (Phase III) of the program early in FY 1974. The Air Force was to continue with Phases I and II on an accelerated basis with the Army providing assistance on procurement, engineering and installation.

(U) STRATCOM was tasked with the responsibility within the Army and in turn delegated it to ACSA with Brigadier General Ogden designated as the Program Manager.[126] Brigadier General Morrison was designated as the Army Manager for Project J-7 at DA level and Brigadier General Edge at Air Force level.

(U) A German firm, Siemans Halski, whose contract was administered by the Frankfurt Procurement Office, furnished the UHF equipment. All the other equipment was obtained thru TASA with the procurement by the Sacramento Army Depot Procurement Office. Collins Radio furnished the microwave equipment; Andrews Antenna gear and wave guides; and Rohn furnished the towers. Equipment for Phases II and III was also to be supplied from these sources, except for the towers which were part of the Engineering and Installation contract for Phase III.

---

[126]Director's Significant Action Report, R&P, for reporting period of 10-14 January 1972; Action Officer: Mr. Earman.

(U) The Air Force, augmented by Army installation teams, was scheduled to complete installation of Phase I by 30 June 1972, and Phase II by 31 December 1972. A separate contract for installation assistance was contemplated for Phase III, through either a two step E&I contract or separate engineering and installation contracts. Due to the magnitude of funding required for Phase III, approval for reprogramming of funds was required. DOD/Congressional agreement was anticipated during the 1st Quarter of FY 1973.

(U) The completed system will provide American TV services to over 160,000 US Army Military personnel and their dependents. Phase III, alone, was scheduled to bring American television to approximately 90,000 Army troops, 45,000 dependents, and 4,000 Army civilian employees.

(U) Tactical Operations Systems (TOS). This program was project managed by BG A. B. Crawford, Jr., and was considered a significant element of the Army Tactical Data Systems (ARTADS).

(U) In April 1971, a concept was approved which lead to the current procurement of the TOS Operable Segment (TOS_2) and related equipment for a Teleprocessing Design Center and Software Support Center. TOS_2 will be configured to provide for the rapid gathering, storing, processing, displaying and disseminating selected portions of operations, intelligence and fire support coordination information for commanders in a tactical environment.

(U) The House Appropriations Committee directed a GAO review of the TOS_2 program which was completed on 30 May 1972. On 19 June 1972, the Chairman, House Appropriations Committee, advised the Director of Army Budget to proceed with the TOS_2 award.

(U) Consequently, a sole source contract was awarded to Litton Systems, Inc. The Director of Requirements and Procurement, USAMC, approved, on 21 June 1972, the proposed award to Litton Systems, Inc. in the amount of $13,903,750. The actual contract was signed on 23 June 1972.

(U) Satellite Communications. The project manager for this program, COL Leland Wamsted, also is the Commanding Officer of the US Army Satellite Communications Agency, Fort Monmouth, New Jersey.

(U) Several projects comprise the total SATCOM activity in which the Defense Satellite Communications System (DSCS) is the principal project. DSCS Phase I was operational, and the initial stages of Phase II had commenced, involving the use of synchronous satellites. DSCS sub-tasks included modifying, upgrading, and adding to the Phase I equipments to make them capable of operating with the Phase II satellites.

(U) During this fiscal year, the AN/MSC-60 Heavy Transportable Terminal was under development and undergoing tests. The results will determine its acceptability for use as an earth station medium for DSCS Phase II.

(U) The SATCOM program received international acclaim for its use as a communications medium during the various Apollo astronaut programs. Further, it was utilized by the President of the United States during several of his world travels. In addition, a new assignment was received to fabricate terminals for the Direct Communications Link between Washington, D. C. and Moscow.

(U) Tactical Automatic Switchboard. A competitive negotiated contract was awarded on 4 October 1971 to GTE Sylvania, Incorporated, for the procurement of 18 Automatic Telephone Central Office, AN/TTC-38. The need for automatic switching was dictated by the volume and urgency of electronically transmitted information required to control and direct combat operations. Operational requirements surpassed the capabilities of existing manual switching equipments originally fielded in the 1950-1954 period.

(U) Manual switching equipment was dependent upon the proficiency of the human elements and could not provide the necessary speeds of communication required for decisions in the environment of modern battle. The AN/TTC-38 was a transportable, mobile, automatic electronic switching exchange employing solid state modular construction to provide 300 4-wire terminations capable of being expanded to 600 terminations. It provided a flexible capability for a variable mix of special circuits, which permitted interface with other communication systems such as Autovon, commercial dial, and military switchboards. A narrow-band switchboard with a 25 percent wide-band capability, the AN/TTC-38 is also a multi-military services switchboard.

(U) The intended Army usage was in the echelons of Army and Corps Headquarters, Field Army Support Command Headquarters, Theater Army Headquarters, and Army Area Signal Centers. Initial fielding of the AN/TTC-38 was forecasted for the second quarter of FY 1974. The AN/TTC-38 was considered to be an interim switch pending the advent of the TRI-TAC Switch, AN/TTC-39.

(U) Tactical Automatic Digital Switch (TADS). This system was to provide a secure interchange of digital data and teletype message traffic among European and Seventh Army subscribers of interfacing communications networks.

(U) The Burroughs Corporation of Paoli, Pennsylvania, was awarded, on 31 January 1969, a firm fixed price contract for $430,000.

It provided for the design, fabrication tests and subsequent integration of two TADS into the existing Seventh Army communication network. Switches #1 and #2 were shipped to USAREUR on 14 November 1970 and 12 March 1971, respectively. Acceptance tests were successfully completed and acceptance accomplished 25 July 1971.

(U) The lease for TADS expired on 25 July 1972. USAECOM was processing extension of the lease for a period of six months until the Army takes ownership of TADS 1 and 2. It was planned to procure the two TADS presently on lease in Europe in December 1972, and a third TADS in FY 1973.

CHAPTER V

PROJECT MANAGEMENT: WEAPONS SYSTEMS

Introduction

(U) Reporting to the Deputy Commanding General for Materiel Acquisition, the Special Assistant for Project Management is the focal point within Headquarters, AMC, for project management concepts and guidance for the various project managers. This applies to those managers reporting to commodity commanders as well as those reporting directly to AMC Headquarters. Project management is a concept for the management of high cost, highly important and complex weapons systems and equipment systems meeting specified Office, Secretary of Defense and Department of the Army criteria. There are both product and project managers. Project managers are chartered by the Secretary of the Army and Product Managers are chartered by the Commanding General, AMC. Each type of manager is responsible for directing and controlling all phases of research, development and initial procurement, production and logistic support to meet objectives stated in his charter. At the beginning of FY 1972 (1 June 1971) there were thirty-six project managers and five product managers Of these, eight project managers and one product manager reported to Headquarters, AMC. By the close of the fiscal year, one more project manager was reporting to Headquarters, AMC, making a total of ten.

(U) The project managed systems covered in this report are those reporting to the headquarters, AMC except LANCE and SAM-D (surface-to-air-missile) whose histories are covered in the Annual Historical Report of Major Activities of the USA Missile Command. Those covered in the order mentioned include: Advanced Attack Helicopter, Utility Tactical Transport System, Main Battle Tank - XM803, CHAPARRAL/VULCAN under a weapons systems portion and container systems, Mobile Electric Power, Satellite Communications (SATCOM), and Strategic Army Communications (STARCOM) under an equipment systems portion.

(U) Fiscal year 1972 was a bad year for Army weapons development in view of the faltering efforts to secure a heavy attack helicopter and a main battle tank whose kill superiority would defeat the superior numbers of tanks that the visualized enemy could deploy. The MBT-XM803 development program with the Federal Republic of Germany and the development contract for the AH-56 Cheyenne Helicopter were both terminated. Though both programs would be continued in modification, it had to be admitted that an entire generation of research and development had been expended in these two programs. The Army was still without a single production model of either the MBT-70, XM-803 or the AH-56 ever having reached the troops after an expenditure of about $1 billion. Both of these programs proved to have longer gestation periods and proved far more expensive than predicted. In each case, development of the systems suffered because of changing battle scenarios, changes in the

state-of-the-art, conflict with an unsympathetic Congress, increasing costs, unrealistic cost estimates, and in the case of the Cheyenne, with conflicts with the other services. Both offer numerous, if expensive, lessons learned.

(U) To combat future problems of this nature, the Army continued with its program improvement of systems for weapons acquisition and project management. Regarding the selection and training of project managers, it was the view of the Army that project manager selection should be based upon training progression based upon long lead time estimates of future requirements. Assignments were to allow for progression based upon experience which offered recognition and proper reward for success. In the period of the 70's, the whole area of materiel acquisition and project management was under study by the Army with an aim of improving weapons systems development.

Advanced Attack Helicopter*

Organization and Management

(U) On 1 June 1972, the Office of the Project Manager, Advanced Aerial Weapons Systems (AAWS), was redesignated as the Office of the Project Manager, Advanced Attack Helicopter (AAH), stationed at the Aviation Systems Command in St. Louis, Missouri.[1] Earlier in the year, on 15 March 1972, the Commanding General, USAMC, directed that the management of the Cobra (UH-1) which was then under the Advanced Aerial Weapons System Office, be reorganized as a separate Product Manager at the USA Aviation Systems Command. To effect the transfer, fifteen personnel spaces were transferred from AAWS to the Product Manager, Cobra.[2]

(U) A new charter for the Advanced Attack Helicopter replacing the one for Advanced Aerial Weapons System (AH-56A/UH-1) was approved by Acting Secretary of the Army, the Honorable Kenneth E. Belieu on 12 October 1971. The charter was to be reviewed on an annual basis to assure currency and accuracy. Brigadier General Henry H. Bolz, Jr. was assigned responsibility for management of the Advanced Attack Helicopter and delegated full line authority for centralized management of the Advanced Attack Helicopter Project and responsibility for planning, directing, and controlling the allocation and utilization of all resources authorized for execution of the project. He was responsible for the development, test and evaluation, procurement, production, distribution, training and initial

---

1 Project Manager Charter for Advanced Attack Helicopter, Secretary of the Army, 1 June 1972.

2 HQ USAMC General Orders Number 165, 3 July 1972.

*Much of this portion of the Project Management Chapter was furnished by The Project Manager for Advanced Attack Helicopter.

logistical support to accomplish project objectives. He was responsible for achieving the technical performance objectives of the project on schedule and at the lowest practicable cost. He was also responsible for practical trade-offs between system capability, cost and schedule within the bands of performance of the requirements documents. He was further responsible for assuring that planning was accomplished and that, except as otherwise directed, the execution of the project would conform to the plan including implementation by the organizations responsible for the complementary functions of evaluation, life cycle logistic support, personnel training, operational testing, and activation or deployment of the system and its related equipment. The Project Manager was supported by offices and organizations within AMC. General Bolz, who was originally assigned on 1 December 1970 to head the AAWS project, reported directly to the Commanding General, AMC, as manager of the new project.[3]

(U) Under the charter, the project manager was assigned responsibility for RDT&E for the Helicopter Attack AA56-A (Cheyenne), TOW/Cheyenne and Cheyenne Night Vision. The Project Manager was also responsible for the overall procurement management, including product improvement and advanced production engineering as required, of the following PEMA programs for the Advanced Attack Helicopter: airframe, engine, avionics, armaments, fire control, ground support equipment and others as assigned. Other assigned programs and tasks included OMA, PEMA Secondary and Army Stock Fund as assigned, plus responsibility for coordinating other customer procurements as required including tri-service and co-production as applicable.

(U) The Project Manager was specifically given responsibility for establishing and maintaining a system for contractor performance measurement in the area of cost and schedule. As part of his management of the project, he was to continually monitor and analyze the variances between the amount of work accomplished and the actual costs. As the result of his analysis in contractor performance, the Project Manager was to identify potential or incipient problem areas and develop and define alternatives, and depending upon the authority threshold, he would take or recommend actions to overcome the problems with minimum adverse effect upon the program.

(U) Interfaces with other levels included: Office of the Secretary of Defense, Department of the Army, Department of the Navy, Department of the Air Force, National Aeronautics and Space Administration, Federal Aviation Agency, and foreign governments as required. Other AMC participating organizations included the US Army Aviation Systems Command that provided administrative, logistic, procurement, maintenance, systems analysis, cost analysis, product assurance, distribution, engineering

---

3 Letter AMC Special Assistant for Project Management, COL C. E. Miles to Project Manager Advanced Attack Helicopter, 9 June 1972, subject: Advanced Attack Helicopter Project Manager Charter.

and R&D support; the US Army Electronics Command that provided aviation/electronics (Avionics); the US Army Missile Command that provided armament/missiles, missile and rocket launchers, and guidance and control equipment; the US Army Munitions Command that provided armament/ammunition, the US Army Test and Evaluation Command that provided aircraft and associated aerial weapons system testing, the US Army Weapons Command that provided armament/fire control; the Harry Diamond Laboratories that provided contractor services for the integrated management system; and the Army Materiel Systems Analysis Agency that provided systems analysis support as directed by Headquarters, AMC.

(U) The US Army Combat Developments Command participated in Troop Tests, development of Coordinated Test Programs and Expanded Service Test Plans, In-Process Reviews (IPR), and determinations of training requirements and training aids; developed Basis of Issue (BOI), Table of Organization and Equipment (TOE), qualitative materiel requirements materiel need documents, deployment doctrine, employment concept, studies, and guidance regarding changes to materiel objectives and materiel development.

(U) The Project Manager had a direct channel of communication to the Chief of Staff, Army, and to the Secretary of the Army should any of the participating organizations fail to respond to project requirements in any of the several management areas. Also, direct communication was authorized between all participants involved in implementation of the approved project to assure timely and effective direction and interchange of information between participants. Prior to communicating with the Office of the Secretary of the Army, Office of the Chief of Staff, Army, or interface with participating agencies not part of DA, the Project Manager would coordinate with the Department of the Army Systems Staff Officer.

Resources Control

(U) Army resources approved to accomplish the above responsibility would be provided directly to the appropriate subordinate commands, after administrative processing through Headquarters, AMC, to be used as directed by the Project Manager. Other departmental resources, pertinent to assigned mission would be provided directly to the Army by Military Interdepartmental Purchase Request (MIPR) and was to be used as directed by the Project Manager. The staff of the Project Manager was to perform management functions in the areas of personnel and training management, program management, procurement and production, logistics, test and evaluation, system engineering, configuration management, data management, product assurance, human factors, and advanced production engineering and support management. Automatic data processing support was furnished by AVSCOM. The Project Manager was responsible for cost control of his project, and he was specifically responsible to insure that the procurement cost was minimized through cost control, change control, contractual enforcement, and contractor motivation. In the execution of this responsibility he would maintain continual surveillance of the variance between planned cost of the work performed and actual cost for that work to detect and ameliorate incipient cost growth, and he would insure that each contract change was analyzed for life cycle cost impact prior to execution.

(U) The Project Manager's Office was located at Headquarters, AVSCOM, St. Louis, Missouri, with necessary facilities and administrative support being provided by that organization. Field offices were to be created by the Project Manager as required without change of charter with facilities and administrative support being provided by command/activities where established. This organization is dependent for office support upon HQ AVSCOM, the Lockheed Plant Activity, ECOM, and USAMC. The total average strength was 121 with 15 military and 106 civilians.

(FOUO) Phase I of Producibility/Cost Reduction Study (PCSR) was completed and a new cost estimate developed. The results of this study were presented at AMC Headquarters and to DA, ACSFOR. During the study, it was shown that considerable savings could be obtained by using Economic Order Quantity (EOQ) techniques of computing spares requirements. In the case of spare engine requirements for 472 aircraft, savings amounted to $17,000,000. The study also revealed that integration costs for complex weapon systems was a major factor of consideration in weapon system costs. The PM cost analysis team spearheaded the research on integration costs and provided the primary expertise and analysis methods to evaluate integration costs. Final results indicated that the expected unit cost for 472 aircraft would be about 3.8 million dollars. This figure was shown to have a possible approximate 5% variation up or down due to inflation potentials as well as potential reductions in the cost of electronics.

(U) Subsequent to PCRS, the Chief of Staff commissioned Mr. Richard Traynor to initiate an independent estimate under the direction of W. Allen Chavet of the Comptroller of the Army. This study was supported by the Project Manager's cost analysts with two people working full-time for one-half year providing data, techniques, guidance and analytical assistance to the study. The results of this study were to be presented to higher headquarters and top management in the Army sometime in August of 1972.

Procurement and Production

AH-56A Cheyenne Development

(U) As reported in the last Historical Report, then LTG Miley was designated the DA agent for negotiating a Memorandum of Understanding (MOU) with Lockheed. These negotiations were concluded on 17 August 1971 by execution of the MOU. The intent of the MOU was to identify essential points of understanding and agreement and to provide a basis for settlement of production contract disputes and restructuring of the development contract. Modifications to both the development and production contracts which implemented the agreements reached in the MOU, and under these agreements, the development contract was converted from a fixed-price incentive type to a cost-reimbursable no-fee contract. The development contract modification provided that Lockheed would not be reimbursed for costs incurred in the performance of the contract prior to the 29th day

of December 1969, which are in excess of $95,100,000.00. As the contractor had incurred costs of $167,400,000.00, they therefore agreed to incur, at a minimum, a loss of $72,300,000.00. During the reporting period, the development contract had been amended to (1) install a T64-GE-716 (ST) engine in an AH-56A aircraft, (2) integrate an experimental pilot/s night vision system in the AH-56A aircraft, (3) develop and install an experimental Symbology Generator in an AH-56A aircraft and (4) realign the scope of work under the restructured contract. Effort under this development 1 contract was expected to continue through May 1974.[4]

AA-56A Producibility/Cost Reduction

(U) The Producibility/Cost Reduction Study, Phase I, conducted by Lockheed Aircraft Corporation and the analysis of the study conducted by Stanford Research Institute were completed in November 1971. The purpose of this study was to identify substantial reductions in the overall system cost of the AH-56 Cheyenne Weapons System. A contract for Phase II of the Producibility Cost Reduction (PCR) Program was awarded to Lockheed Aircraft Corporation on 16 June 1972. Phase II of the PCR program would be to complete the definition of a production configuration of the AH-56A weapon system. It was an expansion of the Phase I PCR study and was for the development of alternate design approaches, preliminary design layouts, equipment sources, and cost estimates for each candidate design together with the initiation of long lead time procurements to support the hardware portion of Phase II. Fabrication of and both ground and flight testing of certain selected designs would also be performed under the contract.

(U) The study provided the necessary information to assist the Government in making decisions concerning the final configuration and production alternatives for the Cheyenne Weapons Systems. The study addressed the many aspects related to reducing the cost of investment and operation of the Cheyenne Weapons System but stressed those leading to reduced investment cost. The study provided feasible alternatives to be carried into the Phase II portion of P/CR. Under this portion, actual flight testing of hardware items selected for modification would be undertaken in the Cheyenne. The items undergoing test would be as near to production versions as could be attained with no loss in schedule. It was anticipated that the Phase II portion would be substantially completed during FY 73. The preparation of final reports was the only effort scheduled to extend beyond this time frame.

Combat Development Command Experimental Command (CDCEC) Experiment 43.6

(U) On 27 January 1972, a contract was awarded to Lockheed Aircraft Corporation for engineering and technical services necessary to support an Army operational evaluation, CDEC Experiment 43.6, using AH-56A vehicle S/N 66-8831 at Hunter-Liggett Military Reservation, California. During the

---

4 Public Law 85-804, 28 Aug 56, 72 Statute 972, 50 U.S.C. 1431-1435(2) Executive Order Number 10789, as amended, issued 17 Aug 71.

experiment, the AH-56A vehicle was operated by Army and Lockheed personnel and performed tactical flight operations over a predetermined navigation course, acquired targets and simulated weapons firing at Hunter-Liggett for the purpose of evaluating the Cheyenne's effectiveness in a tactical environment. The tests were completed in May 1972.

Technical Management

Advanced Mechanical Control System (AMCS)

(U) An expedited AMCS Program was initiated when the restructured AH-56A R&D contract was signed on 17 August 1971. Prior to this date, Lockheed and the major subcontractor, Bertea Corporation, had been proceeding with detail design and component evaluation on Lockheed funding. At that time, first AMCS shipset delivery of seven shipsets was scheduled for 28 April 1972.

(U) The first shipset, for component fatigue testing, was delivered on 15 April 1972. Through the end of FY 72, five (5) sets of hardware were delivered. The last two (2) sets were scheduled to be delivered in July 1972.

(U) The first assembled AMCS (and second delivered shipset) was installed in the functional mockup, a loads-and-motion system designed to determine criteria acceptability and substantiate the fatigue and wear endurance criteria. Checkout and development test was initiated in May 1972. One hundred hours endurance running to a load spectrum is a contractual requirement prior to AMCS first flight.

(U) The third AMCS was installed on the whirl tower at Lockheed's Rye Canyon research laboratory. Following development of a complete rotor lift-RPM-rotor moment envelope, Lockheed was to operate the rotor/control system to a control motion spectrum for twenty-five hours prior to AMCS first flight. The fourth AMCS was installed in the Ground Test Vehicle (GTV) to prove out the rotor/control system/airframe dynamic interface. Twenty-five hours of endurance running were contractually required prior to AMCS first flight. The fifth AMCS was installed in the first flying aircraft in the program, 66-8837 (ship 1007). First flight was contractually scheduled for October 1972; the internal target was 25 August 1972. The sixth AMCS was to be installed in the prime aerial development vehicle, 66-8834 (ship 1009). Originally, this aircraft would have flown first; however, diversion of this ship to the Advanced Attack Helicopter evaluation delayed its entry into AMCS mod by two months. This ship was scheduled to fly two months after ship 1007. The seventh AMCS shipset was a spare to support the program.

Night Vision

(U) During February 1972, PINE "Tap-Off" Helmet Mounted Display (HMD) was incorporated into the Cheyenne pilot station. This display provided the pilot with a view of the Night Vision System (NVS) image. The HMD/Pilot Helmet Sight (PHS) combination was used to slew the Swivelling Gunner's Station with associated NVS, to give the pilot a limited night vision flying capability. A flight test of the system

affirmed the limited capability. As a result of the "Tap-Off" program, it was determined that it would be necessary to have electronic symbology superimposed over the PINE video. This symbol video will be routed to the Helmet Mounted Display (HMD) and a Heads-Up Display (HUD). A limited ground test program will be conducted to evaluate the relative benefits from the additional equipment.

Army Program Evaluation 1.3

(U) APE 1.3 was the third phase of APE I conducted by US Army Aviation Test Activity and was primarily a reevaluation of the handling qualities of the HA-56 with external stores following extensive main rotor and control system changes. During the conduct of APE 1.3, the aircraft was returned to the contractor for a series of modifications. As a result, APE 1.3 was divided into two phases, 1.3A to denote pre- and post-modification testing. APE 1.3A totaled 7.5 production flight hours and APE 1.3B totaled 15.5 productive flight hours. APE 1.3 started on 10 September 1971, and was completed on 22 December with 55 calendar days charged to testing. The final report encompasses APE 1.1, 1.2 and 1.3 and the 5 hours of ASTA RDAT I weapon firing.

Research, development & testing

(U) RDAT I was conducted by USATECOM to determine operational and performance characteristics of the AH-56A weapons system, including the avionics, navigation, fire control and air vehicle subsystems. The results of this test were to provide the AAH PM a data base for the assessment of the extent to which development specifications have been fulfilled and the need for further developmental requirements. RDAT started on 29 September 1971, was completed on 22 December 1971 and totaled 39.7 productive flight hours.

Phase IV, CDEC experiment 43.6

(U) CDEC 43.6 was conducted from 3 April to 3 May 1972 utilizing an AH-56 Cheyenne and an AH-1G TOW/Cobra to accomplish the assessment capabilities of both aircraft to navigate nap-of-the-earth with on-board navigation subsystem; to assess the capability of the two aircraft to detect and re-detect selected targets using on-board subsystems; to determine the time required from target detection to TOW launch for both aircraft using on-board subsystems; to obtain gunner tracking data using on-board subsystems for both aircraft, and to determine the time required for both aircraft to respond to a mission demand from cold start to lift off at a Forward Operating Base. The experiment totaled 33.1 hours of productive flight time by the AH-56 and 34.0 hours by the AH-1G TOW/Cobra.

Army Program Evaluation III

(U) APE III was conducted by USATECOM from 18 January to 11 February 1972 and totaled 14.2 hours of productive flight time. The objective of this test was to collect, analyze and report data on operation and performance of the TOW/NVS subsystem. Twelve (12) flights were flown and eight (8)

TOW missiles were launched in daylight and nine (9) flights were flown and five (5) TOW missiles were launched at night.

Contractor testing

(U) TOW/NVS Phase "B" testing - Phase B of the TOW/NVS Program was conducted from 24 June to 10 June 1972. This program verified the TOW missile integration into the AH-56A with a night vision system (NVS) installed in the swiveling gunner's station (SGS). In addition, the TOW Control Equipment (TCE) was designed, fabricated and tested to establish a suitable preproduction configuration. TOW launcher revisions were accomplished which improved safety, alignment and debris control and the SGS modifications were completed to interface the Phase "B" TCE and upgrade the sighthead. Additional cable sheathing was accomplished to improve electromagnetic interference. Other less significant tests were conducted by the contractor commensurate with a dynamic development program occurring during the period.

Funding

AH-56A RDTE

(U) The Cheyenne AH-56A RDTE approved funding program for FY 72 was $9.3 million for DA Project 1X123625D192; Element Code 2.36.25.A; AMCMS Code 517B.12.68100; Cheyenne, AH-56A. The FY 72 program was not received until February 1972. Consequently, in view of the unobligated balances of FY 71 and prior years funds available due to redirection of the development program at the close of Fiscal Year 1972, an unobligated balance of $8.5M in FY 72 funds remained. Throughout the year, the development program was financed with FY 71 and prior year funds, with the exception of the commitment of $1.7M of FY 72 funds of which $0.8M had been obligated by the end of the fiscal year. PEMA funding for Advanced Production Engineering was not appropriated during FY 1972.

Logistics Support

Army Advanced Attack Helicopter Flyoff

(U) Contracts were initiated with Bell Helicopter Company (BHC), Sikorsky and Lockheed Aircraft Company (LAC) for the purpose of performing an evaluation of King Cobra, S-67 (Blackhawk) and AH-56A (Cheyenne). Tests were contractor supported and data obtained would be utilized to assist the Department of the Army in determining which aircraft was best suited to serve the US Army as an Advanced Attack Helicopter (AAH) within the Air Mobile Concept.

AH-56A Engines

(U) Conversion of initial AH-56A aircraft from T64-GE-16 to T64-GE-716 (ST) was authorized by D. O. P00261 to Contract DAAE11-66-C-3667(H) in February 1972. Since that initial installation, a second aircraft was converted to T64-GE-716 with five (5) additional T64-GE-16 engines authorized for conversion to the T64-GE-716 (ST). These would be utilized as spares

support for installed engines. The T64-GE-716 was a more powerful engine and would be used for production aircraft when approval was given.

Materiel Need Document - Attack Helicopter

(U) A new Materiel Need (MN) document was being prepared by the Advanced Attack Helicopter Task Force. The document would redefine requirements for aircraft taking into consideration the advances in the state-of-the-art and improvements to existing equipment. Logistics concept area was thoroughly reviewed to insure compliance with existing regulations and guidelines.

Product Assurance

New Equipment Training - AH-56A

(U) During August 1971, eight Army non-commissioned officers with formal maintenance training on the AH-56 helicopter were formed into a group for the purpose of observing and recording actual maintenance performed on the AH-56A. The task encompassed all Army testing during the Fiscal Year. Result of the effort gave actual maintenance factors on aircraft and equipment, the most important being maintenance man-hour per flight hour data.

Maintenance Man-Hour/Flight Hour

(U) A maintenance man-hour per flight hour (MMH/FM) study was completed February 1972. This study was a prediction based on reliability data and initial data from the Maintenance Engineering Analysis Data prepared during the initial development of the AH-56A, and it concerned all levels of aircraft maintenance. The study was scheduled into FY 73 for update utilizing later data.

Configuration Management

(U) Configuration Management has encompassed such items as Configuration Audits, Configuration Item Verification Reviews, In-Process Reviews (IPR's) (AR 70-37, AR 705-5 and AMCR 70-5), and restructuring the restructured contract. Interface Control Documentation (ICD's) has been maintained and monitored through the support of Commodity Commands by use of Interface Control Working Groups (ICWG's), utilizing membership derived from the Configuration Control Board (CCB). Configuration Management's responsibility included the identification, evaluation and control of ICD's and changes thereto, including design, development and subsystem integration interface problems, such as Government Furnished Material (GFM) interface with Contractor Furnished Equipment (CFE), AH-1G Cobra configuration management disciplines of AR 70-37, MIL-STD-480 and 481 were enforced by this Office until March of 1972 when a change to the Project Manager's Charter placed the Cobra under Product Management.

(U) Selected tabulated activities/accomplishments included in Configuration Management were: T64 Engine Component Improvement Program (CIP); T64 Engine Engineering Change Proposals (ECP's); AH-56A Waiver reviews and

approvals; Restructured AH-56A Development Contract; AH-1G Modification Work Order Actions, review and rescinding; AH-1G Product Improvement Program; and AH-56A airframe and engine drawings computerized into AVSCOM Data.

(U) A fundamental concept associated with the system/project management was the use of a series of Configuration Management baselines which assure an orderly transition from one major decision point to the next in the system life cycle. Achievement of Configuration Management objectives result in assured hardware performance and improved logistic support and weapons readiness, enhanced standardization and item-entry control, increased competitive procurement, reduction of technical data, uniformity of contract administration, and the intermeshed implementation of DOD programs such as Contract Definition, PERT/COST and time, Value Engineering (VE), Technical Data Management and Standardization.

Utility Tactical Transport Aircraft System

Introduction and Early Background*

(U) In December 1966, the Utility Tactical Transport Aircraft System (UTTAS) Project Office was established. The UTTAS was designed as a new twin engine helicopter that would replace the UH-1 in the air assault, air cavalry and med-evacuation mission as the Army's first true squad assault helicopter. The primary UTTAS missions would be the transport of troops and equipment into combat, resupply of these troops while in contact, and the associated functions of aeromedical evacuation, repositioning of reserves, command and control and other combat support.

(U) During FY 67 through FY 69 Phases I and II of Concept Formulation were completed. During FY 70 and through the 3rd Qtr FY 71, Phase III of Concept Formulation was completed. The Program Quality Materiel Requirement (PQMR) was completed, staffed worldwide and forwarded to ACSFOR for approval on 23 Jun 70. Review of the PQMR at ACSFOR revealed that it was sufficiently descriptive of the requirements for a follow-on lift ship to warrant its use as a basis for completing the concept formulation phase of the UTTAS life cycle. The UTTAS QMR was approved by the DA, Vice Chief of Staff on 10 Feb 71 and returned to US Army Combat Developments Command for printing and distribution. The Defense System Acquisition Review Council (DSARC) met on 13 May 71 to review the Army proposal to transition the UTTAS aircraft program from concept formulation to the validation phase. The UTTAS Development Concept Paper No. 13 was approved by the Office Secretary of Defense on 22 Jun 71 for development of the UTTAS helicopter. US-1 responsibility was transferred to the Director of Materiel Management, US Army Aviation Systems Command (USAAVSCOM).[5] The updated Project Manager Charter was approved by the Secretary of the Army on 17 Sep 71. The UTTAS Materiel Need (ED) was approved by the Vice Chief

---

5 Letter, AMSAV-SA (PM), 13 September 1971.

*This portion of Project Management Chapter was furnished by the Project Manager for UTTAS.

of Staff on 29 Dec 71 and returned to CDC for formal publication and distribution which was accomplished in February 1972. The MN (ED) document supersedes the QMR.

(U) COL Leo D. Turner reported 15 August 1971 as Utility Aircraft Project Manager (UAPM) vice COL John W. Lauterbach. COL Turner was promoted to Brigadier General effective 1 February 1972.[6] (Chart 3.)

(U) Effective 6 July 1971, the Utility Aircraft Project Manager was relieved from assignment to USAAVSCOM, assigned to Headquarters, US Army Materiel Command and attached to USAAVSCOM for administrative and logistical support. At the beginning of Fiscal Year 1972, personnel authorization was 67 (62 civilians, and 5 military) with a total on board of 45 (41 civilians and 4 military). At the end of the First Quarter Fiscal Year 1972, 4 civilian spaces were withdrawn, leaving a total authorization of 63 (58 civilians and 5 military). The personnel strength at the end of Fiscal Year 1972 was 56 (51 civilians and 5 military).

Operational
Funding

(U) The Fiscal Year 1972 RDT&E program at the end of the First Quarter was $22,250,000. This consisted of $12,900,000 for the Airframe Program (Project #1X164206D378) and $9,350,000 for the Engine Program (Project #1G164203D189-05). The Fiscal Year 1972 RDT&E program at the end of the Third Quarter was $22,717,000. This consisted of $12,900,000 for the Airframe Program (Project #1X164206D378) and $9,817,000 for the Engine Program (Project #1X164203D189-05).[7]

UTTAS Engine

(U) During the First Quarter Fiscal Year 1972, the preparation and issuance of the Engine Request for Quotation (RFQ) was completed.[8] The Source Selection Advisory Council (SSAC) was briefed on 15 July 1971, and the AMC Senior Procurement Review Board was briefed on 26 July 1971. The RFQ was released to industry on 30 July 1971 with a two-month response deadline. Responses were received by the Source Selection Evaluation Board (SSEB) on 28 September 1971. Source selection for the engine was completed during the Second Quarter Fiscal Year 1972. On 6 December 1971, the announcement was made that the winning contractor was General Electric (GE). Negotiations with GE were completed and the contract signed on 6 March 1972.

(U) The negotiated target price was $97,595,550 (target cost of $90,450,000 and target fee of $7,145,550 (7.9%). The target price for Development (MQT) was estimated at $56,458,323 and for Air Vehicle Support was estimated at $41,137,227. The initial incremental obligation of $21,112,000 consisted of $16,212,000 for Development and $4,900,000 for Air Vehicle Support.

6 Special Order #20, dtd 28 Jan 72, Appendix I.

7 AMC Form 1006, dtd 11 Jun 71, Appendix VI.
AMC Form 1006, dtd 27 Sep 71, Appendix VII.
AMC Form 1006, dtd 28 Jan 72, Appendix VIII.

8 Engine Request for Quotation (RFQ), Appendix IX.

ORGANIZATION CHART
ADVANCED ATTACK HELICOPTER
TDA 1DW3AQAA00

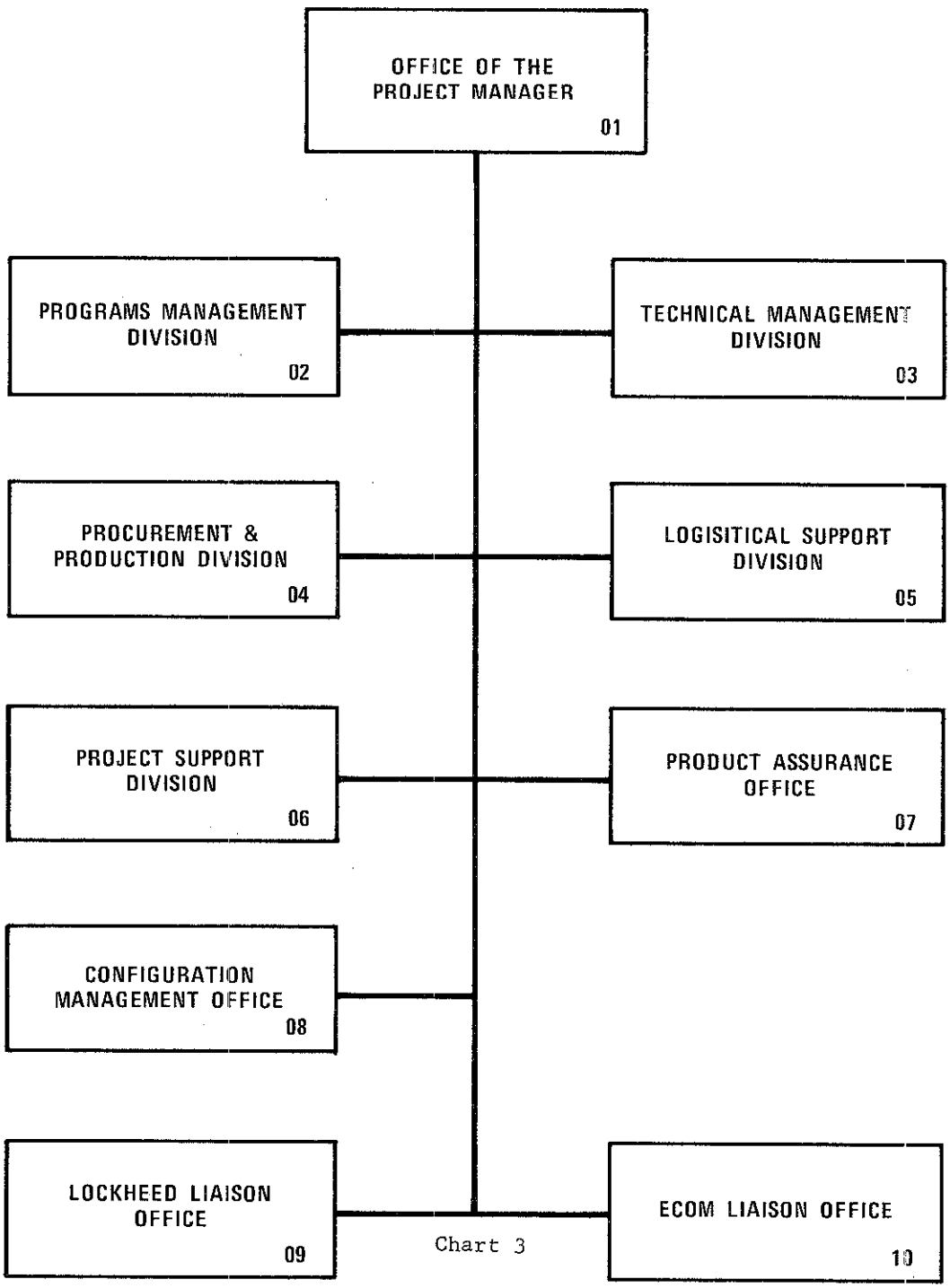


Chart 3

(U) The first Program Progress Review (PPR) meeting was held at General Electric on 19 May 1972. This meeting followed the Preliminary Design Review, Component Design Review, and the T700 Preliminary Mock-Up Review held from 15-18 May. A minor problem concerning the separator was resolved and a design freeze made. The requirement for a fuel flow meter was evaluated and determined that it will not serve the purpose intended, and coordination with CDC concluded to remove this requirement from the MN and GE's contract. The casting for the accessory pad was changed from magnesium to aluminum which will increase weight (5 lbs) but should result in a lower cost production engine with fewer maintenance problems. The initial T700 design configuration reflects a weight of approximately 9 lbs in excess of the PIDS requirement. GE is pursuing a weight reduction activity to achieve the specified weight of 360 pounds.

UTTAS Airframe

(U) During the First Quarter Fiscal Year 1972, work commenced on preparation of a RFQ for the UTTAS. The determination and findings and Advanced Procurement Plan were approved by ASA (R&D) on 29 November 1971. The Source Selection Authority (SSA) for the UTTAS was appointed 3 November 1971. The Chairman of the SSAC and the Chairman of the SSEB were appointed 7 December 1971. Members of the SSAC were designated 15 December 1971. During the Second Quarter Fiscal Year 1972, the RFP[9] for the UTTAS was completed and approved for issue to industry by the SSAC and AMC. The RFP was was issued on 5 January 1972 and a preproposal conference was held on 18 January 1972. Proposals, except cost, were submitted 31 March 1972. Cost proposals were submitted 14 April 1972. The SSEB was organized and reported to Granite City Army Depot on 27 March 1972 for preliminary instruction and preparation to start evaluation. Proposals were received 31 March 1972. Evaluation started 3 April 1972 and was scheduled to continue through 15 July 1972. In accordance with AMCC 715-3-72, dated 6 April 1972, paragraph IIIa action was initiated on 18 May 1972, to negotiate airframe contracts with all three offerors prior to the Source Selection Authority decision. The target date for award was rescheduled to 31 August 1972. Negotiations commenced on 26 June 1972 and were scheduled for completion mid-August. Preaward surveys for the UTTAS were completed in April 1972 with Boeing Company, Vertol Division, Morton, Pennsylvania Bell Helicopter Company, Division of Textron, Fort Worth, Texas; and United Aircraft Corporation, Sikorsky Aircraft Division, Stratford, Connecticut.

Coordinated Test Program (CTP)

(U) During the First Quarter Fiscal Year 1972, the CTP was revised to reflect the Development Concept Paper (DCP) Program as approved by DSARC. The revised draft was distributed for comment on 5 August 1971. Final coordinated draft was forwarded to AMCRD on 21 September 1971 for approval.

---

9 UTTAS RFP, Appendix X.

AMC approved the CTP and forwarded it to OCRD for final approval. OCRD requested a format change requiring complete rewrite. Rewrite was returned to OCRD in December. During the course of staffing, OCRD requested expansion and addition of more details. A new draft CTP was printed on 23 March 1972. CTP staffing at DA continued during the Fourth Quarter. Approval was expected during the First Quarter Fiscal Year 1973.

Materiel Need (MN) Project Support Agreements and Review & Analysis

(U) During the First Quarter, Fiscal Year 1972, conversion of the UTTAS QMR to the MN(ED) format was completed. Formal review of the first draft and publication of a revised draft took place in August 1971. In September 1971, another revision was published which included an Appendix with rationale for each requirement. A General Officer review of the UTTAS requirement was held on 13 October 1971. It was decided to delete the requirement for an alternate seating capacity of 15 troops. The MN(ED) was approved by the Army Vice Chief of Staff on 29 December 1971. The approved MN(ED) was printed and distributed on 11 February 1972. Revised Project Support Agreements which were forwarded to MECOM, MUCOM, and TECOM on 1 November 1971 were approved during the Third Quarter. Review and Analysis for First, Second, Third and Fourth Quarters Fiscal Year 1972 are attached.

UTTAS RDT&E Funding Summary

(U) The FY 72 program Obligation Authority of $30.003M as of 30 Jun 72 included FY 72 Obligation Authority of $22.717M and unobligated balance carryover of $7.286M from FY 71. FY 72 obligations of $23.552M represented 78.5% of the contemporary current program ($16.267M - 71.6% of the year FY 72 program and $7.285M - 100% of the prior year FY 71 carryover program). Obligations during the 3rd Qtr primarily attributed to the initial incremental obligation award of $21.1M for the T700-GE-700 Engine Contract on 6 Mar 72. Unobligated balance carryover of $6.450M into FY 73 would be obligated upon award of the UTTAS Air Vehicle contract(s) and minor in-house adjustments. The UTTAS Source Selection was still being evaluated as of 30 Jun 72. Evaluation, negotiations, selection(s) and contract(s) were scheduled for the 1st Qtr FY 73.

UTTAS RDT&E - (Excludes Engine Development) - Funding Summary

(U) The FY 72 Program Obligation Authority of $13.432M as of 30 Jun 72 included FY 72 Obligation Authority of $12.900M and unobligated balance carryover of $.532M from FY 71. FY 72 obligations of $6.995M represented 52% of the contemporary current program ($6.46M - 50% of the year FY 72 - program and $531M - 99.8% of the prior year FY 71 carry-over program). The unobligated balance of $6.436M carryover into FY 73 was to be obligated upon award of the UTTAS Air Vehicle contract(s). The UTTAS Source Selection Evaluation briefing was scheduled to the Source Selection Authority on or about 1 Aug 72 and the contract(s) scheduled for award by 31 Aug 72.

UTTAS RDT&E - Engine - Funding Summary

(U) The FY 72 Program Obligation Authority of $16.571M as of 30 Jun 72, includes FY 72 Obligation Authority of $9.817M and unobligated balance carryover of $6.754M from FY 71. FY 72 obligations of $16.557M represented 99.9% of the contemporary current program ($9.803M - 99.9% of the year FY 72 program, and $6.754M - 100% of the prior year FY 71 carryover program). The contemporary current (as of 6-30-72) unobligated balance of $14K was to be carried over into FY 73 for In-House expenses.

FY 72 UTTAS RDT&E Program (excludes engine development)

(U) The UTTAS Program (1X164206D 378) was $13.432M. This program was made up of a net of $.532M FY 71 carryover and $12.900M FY 72 funds as of 30 Jun 72. Obligations of $6.995M consisted of $6.464M FY 72 obligations authority and $.531M FY 71 carryover. The unobligated FY 71 carryover balance of $.001M ($733.00) was committed for SSEB, TDY and overtime which was subject to final obligation adjustments.

FY 72 RDT&E Engine Program

(U) The UTTAS Engine Program (1X64203D189) was $16.571M. This program was made up of $6.754M FY 71 carryover and $9.817M FY 72 funds as of 30 Jun 72. Obligations of $16.557M consisted of $6.754M of FY 71 carryover funds and $9.803M of FY 72 funds. The major obligation was due to the award of the UTTAS Propulsion System Contract on 6 March 1972.

Contract Funds Status DAAJ01-72-C-0381, T700 Engine Air Vehicle Support (1X164206D378)

(U) The negotiated Target Price for Air Vehicle Support was estimated at $41,137,227 (target cost of $38,125,326 and target fee of $3,011,901 (7.9%)). This included work effort for 18 XT Engines, 56 YT Engines, Mock-ups, 1 Training Engine, Tech. Reps., Repair Parts, and Overhaul Support, etc. The initial incremental obligation of $4.900M (FY 72 funding) covered estimated incurred costs for the period from contract award (6 Mar 72) through 28 Feb 73. The FY 73 follow-on incremental obligation of $5.101M was required by 1 Mar 73 to cover estimated incurred costs through 31 Dec 73.

(U) Section J.10, subject contract, authorized the contractor to incur pre-contract costs for coordination with the AVM's participating in the UTTAS solicitation during the period 5 Jan - 5 Mar 72, including Voucher No. 1, dtd 10 Mar 72, from GE reflected a cost of $335,220.81. Applicable 7.9% fee was $26,403.44. Vouchers from GE purported to "break out" an estimated $941,031.93 for Air Vehicle Support through Voucher No. 11 (6-23-72).

Contract Funds Status DAAJ01-72-C-0381, T700 Engine Summary

(U) Contract DAAJ01-72-C-0381 was awarded on 6 March 1972. The negotiated target price was $97,595,550 (target cost of $90,450,000 and target fee of $7,145,550 (7.9%). The initial incremental obligation of $21.112M consisted of $16.212M ($6.695M- FY 71 funding and $9.517M- FY 72 funding) for Development (MQT) and $4.900M (FY 72 funding) for Air Vehicle Support. FY 73 follow-on incremental obligation was scheduled/required by 1 Dec 72 for development and 1 Mar 73 for Air Vehicle Support.

(U) Section J.10, of the contract, authorized the contractor to incur pre-contract costs for coordination with aircraft vehicle manufacturers participating in the UTTAS solicitation between 5 Jan and 5 Mar 72, including Voucher No. 1, dtd 10 March 1972, from GR reflected a cost of $334,220.81 (Applicable 7.9% fee is $26,403.44). The initial Contract Funds Status Report (CFSR), DD Form 1586, was submitted by GE letter 5FJG-875, dtd 13 Jul 72, and received in this office 18 Jul 72. This document, with cut-off date 25 Jun 72, reflected contractor accrued expenditures of $3.201. Billings to the Government as of 25 Jun 72 total $2,862,384.21 through GE Voucher #11, dtd 23 Jun 72. However, disbursements in AVSCOM's F&A fiscal records total only $2,282,900.02 as of 30 Jun 72.

Contract Funds Status DAAJ01-72-C-0381, T700 Engine (Engine Development) (1X164203D189-05)

(U) The negotiated Target Price for Development (MQT) was estimated at $56,458,323 (target cost of $52,324,674 and target fee of $4,133,649 (7.9%) The initial incremental obligation of $16,212,000 ($6,695,000 - FY 71 funding and $9,517,000 - FY 72 funding) was for estimated incurred costs from contract award (6 Mar 72) through 30 Nov 72. Scheduled FY 73 follow-on incremental obligation of $13.598 was to cover estimated costs for the period 1 Dec 74 through 31 Jul 73.

Cost/Schedule Performance

(U) The Cost/Schedule Performance Measurement for the T700 Engine Contract was through 25 June 1972, or four months of contract effort The Tri-Service C/SCSC Demonstration Team Review at GE, Lynn, Mass., during the period 12-30 Jun 72 determined that the contractor's system did not satisfy the criteria in a number of areas. The contractor was committed to "fix-it" actions. Until the contractor demonstrated that his management system provided reliable performance measurement data, data presented reflected distorted indicators and variances. An unfavorable schedule variance of $380 thousand, minus 9.2% (BCWS of $4,121 minus BCWP of $3,741) was primarily due to understaffing of engineer personnel at contract go-ahead. Engineering was expected to be back on schedule by the end of Aug 72 through applications of 50 engineers on a six-day week. A favorable cost variance of $876 thousand, plus 23.4%, (BCWP of $3,741 minus ACWP of $2,865), primarily due to understaffing of engineer personnel at contract go-ahead and the variances from cost accounts were due to initial startup of the program.

UTTAS Payroll Hours and Dollars (FY 72)

(U) (OC 52) manhours for the 4th Qtr FY 72 reflected an increase of 161 man-months (average 53.7 per month) since 31 Mar 72. The average cost for the quarter was $8.19 per hour. Cumulative manhours as of 30 Jun 72 represents 585 man-months (49 man-years) at an average cost of $7.96 per hour. Benefits approximate 8.3% of the basic salary. OC 52 overtime of 23,969.25 hours (11.44 man-years) and cost of $181,071.53 was an increase of 11,602 hours and cost of $91,942.40 during the 4th Qtr. This cost

(average $7.92 per hour), resulted from UTTAS SSEB evaluation at Granite City. AVSCOM Dir/RD&E (OC 21) manhours represent a total of 9.2 man-years (3.9 BY's for 514E and 5.3 MY's for 514C) as of 30 Jun 72 at an average cost of $8.23 per hour. Benefits approximate 8.1% of the basic salary.

UTTAS - Overtime - hours/cost

(U) The FY 72 cumulative overtime of 23,969.25 hours and cost of $181,071.53, as of 30 Jun 72, was an increase of 11,602 hours at a cost of $91,942.40 from 19 March 1972 through 30 June 1972. Following is a cumulative breakout of the FY 72 overtime charged to OC 52 (UAPM).

	Hours	Cost	Avg rate
UAPM (Utility Aircraft PM)	139.50	$ 1,035.70	7.42
AVSCOM	3,031.50	23,068.43	7.61
SSEB (Engine)	9,460.25	67,223.97	7.11
SSEB (UTTAS)	11,338.00	89,743.43	7.92
Total	23,969.25	$181,071.53	7.55

Overtime hours and cost for the SSEB (Engine and UTTAS) reflected hours and cost of personnel on the AVSCOM payroll run only. Manual records for commands and agencies other than AVSCOM indicate the following additional overtime hours and cost were performed by the SSEB(s):

SSEB (Engine) 5 Sep - 4 Dec 71 - 4617 hrs, $38,369.27 (Rate $8.31)

SSEB (UTTAS) 26 Mar -30 Jun 72 - 5171 hrs, $45,304.53 (Rate $8.76)

Comparison of the UAPM's office only, FY 72 vs FY 71, represents a decrease of 67 hours (33%) and $64 (6%) in cost of overtime.

Technical - UTTAS RFP

(U) The UTTAS RFP was issued to industry on 5 Jan 72. A pre-proposal conference to answer questions about the RFP was held with prospective bidders on 20 Jan 72. An Engine Mock-up/Interface Review was held with prospective aircraft bidders on 26-27 Jan 72. UTTAS proposals were received by the Source Selection Evaluation Board (SSEB) on 31 Mar 72.

UTTAS Engine Contract

(U) Negotiations with General Electric were completed and the contract was signed on 6 Mar 72.

UTTAS Materiel Need (MN) (ED)

(U) The UTTAS MN(ED) was approved by DA on 29 Dec 71 and printed and distributed on 11 Feb 72.

UTTAS Coordinated Test Program (CTP)

(U) A coordinated draft of the CTP was forwarded to AMC in late Sep 71 for final approval. AMC approved the CTP and forwarded to OCRD for final approval. OCRD requested a format change requiring complete rewrite. The rewrite was returned to OCRD in Dec 71. Approval was anticipated in the 3rd Qtr FY 72, but during the course of staffing, OCRD requested expansion and addition of more details to some portions of the CTP. The CTP draft of 23 Mar 72, with C1, 12 Apr 72, reflects the latest staffing. The 23 Mar draft copy was reviewed by the UTTAS Test Coordination Group consisting of voting representatives and advisors/observers from the DA/AMC community. ACSFOR established CDC responsibility for the preparation and coordination of Operational Test and Evaluation (OT&E) with completed OT&E program scheduled NLT 25 Aug 72. The final draft of the CTP will be distributed for coordination, with formal DA approval anticipated in Sep 72.

Configuration Management

(U) The Configuration Management Plan, dated 30 December 1971, for the T700-GE-700 Turboshaft Engine was incorporated into the 1500 SHP Turbine Engine Development Contract. Formal Configuration Control for the T700-GE-700 Turboshaft engine was initiated with the award of the Development Contract on 6 Mar 72.[10]

Procurement & Production

(U) A CPIF (multiple incentive) type contract was awarded to General Electric on 6 March 1972 for the design and development of a 1500 SHP Turbine Engine and Air Vehicle Support requirements. Total amount of contract was for $97,595,550 and the contract was to run for a period of 57 months. UTTAS Request for Proposal (RFP) was

---

10 PMUA Memorandum No. 70-37, dated 23 Mar 72, subject: Configuration Management Plan (CMP), implements AR 70-37 and USAMC Supplement 1, thereto. This memorandum assigns responsibilities for the direction and control of all UTTAS Configuration Management efforts and applies to all elements of the PMUA Office and supporting commodity commands and elements.

released to industry 5 January 1972 and contractor proposals were received 31 March 1972 and were being evaluated by a SSEB at the close of the fiscal year.

Program Risks.

(U) Overall, technical risks in the development of the UTTAS Engine were considered moderate. There was no area that was considered particularly high, however, in the fabrication of the combuster, a moderately high risk existed. The other moderately high risks were in the test area, one of these being ability to meet PERT and MQT schedules, and the other was performance during the tests. The management risks in the program were the inherent risks involved in the cost type contract and the ability to adequately manage the program.

Pricing Arrangements

(U) The chart at figure 2 depicts the pricing arrangement for the engine contract. This was a cost plus incentive fee (CPIF) contract with multiple incentives. The incentives were on cost, schedule and performance. The incentives on schedule and performance were in addition to the cost incentive. The contract also provided for a 70/30 share ratio (70% Government and 30% Contractor) for both an underrun or overrun of target cost.

Cost Incentives

(U) The chart at figure 3 presents the cost incentive portion of the contract only. This chart shows the pricing structure of the contract and the dollar value therefore. It also shows the points (points 2 and 3) at which the contract converts to a CPFF (Cost Plus Fixed Fee) contract. The RIE (Range of Incentive Effectiveness) or that cost range over which the fee was operative was $24,421,500. The fee dollars or fee swing was $7,326,450 which was the amount of fee that was operative over the RIE. The share ratio was 70/30 for both underrun or overrun of target cost.

Product Assurance

(U) All Programs - the UTTAS Request for Proposal was released with three prospective contractors responding. Division representatives expended a majority of allowable time in evaluation of submitted proposals including resolution of E.O.D.'s. Initial inputs of data items per CDRL on the T700 Engine Contract were received, reviewed, evaluated, and the contractor advised of acceptance or rejection. Schedules by both contractor and the PM element supported by applicable subordinate command units were maintained. In general, performance by

PRICING ARRANGEMENT

UTTAS ENGINE CONTRACT

DAAJ01-72-C-0381(52)

WITH GE COMPANY

TYPE CONTRACT: CPIF (MULTIPLE INCENTIVE)

INCENTIVE ARRANGEMENTS: COST, SCHEDULE AND PERFORMANCE

DATE OF CONTRACT: 6 MARCH 1972

PRICING ARRANGEMENT:
(ACTUAL DOLLARS)

TARGET COST:	$90,450,000	
TARGET FEE:	7,145,550	(7.9%)*
TARGET PRICE:	$97,595,550	
MAX FEE:	$10,854,000	(12.0%)*
MIN FEE:	$ 3,527,550	(3.9%)*
SHARE:	70/30	
SCHEDULE:	-300,000**	
PERFORMANCE:	± $900,000**	

*% OF TARGET COST
**THESE INCENTIVES ARE IN ADDITION TO THE COST INCENTIVE

FIGURE 2

245-082 O - 77 - 10

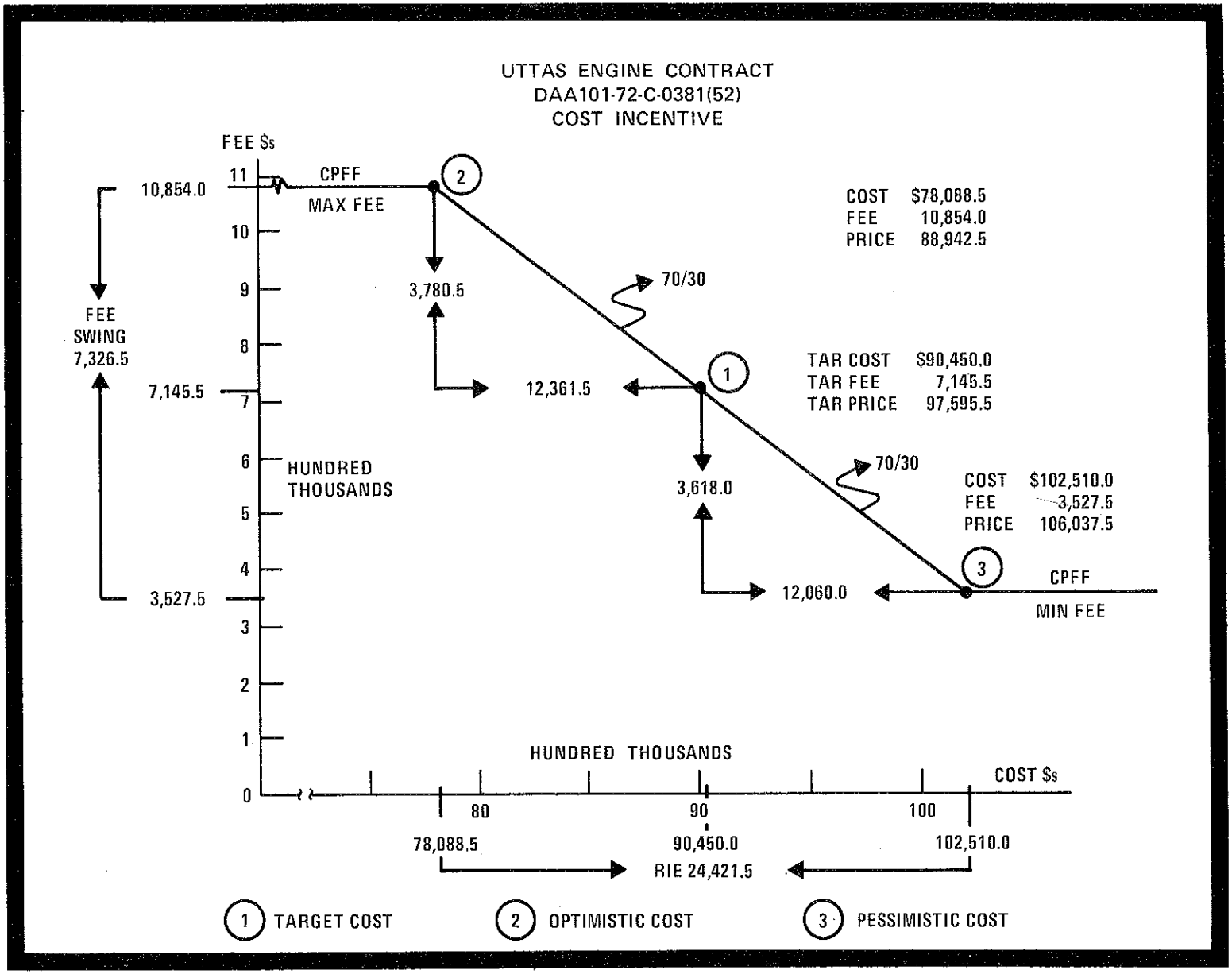

UTTAS ENGINE CONTRACT
DAA101-72-C-0381(52)
COST INCENTIVE
FEE $s
11
10
9
8
7
6
5
4
3
2
1
0
10,854.0
CPFF
MAX FEE
2
COST $78,088.5
FEE 10,854.0
PRICE 88,942.5
3,780.5
70/30
FEE
SWING
7,326.5
7,145.5
12,361.5
1
TAR COST $90,450.0
TAR FEE 7,145.5
TAR PRICE 97,595.5
HUNDRED
THOUSANDS
3,618.0
70/30
COST $102,510.0
FEE 3,527.5
PRICE 106,037.5
3,527.5
12,060.0
3
CPFF
MIN FEE
HUNDRED THOUSANDS
COST $s
80
90
100
78,088.5
90,450.0
102,510.0
RIE 24,421.5
1 TARGET COST
2 OPTIMISTIC COST
3 PESSIMISTIC COST

Figure 3

contractor was considered satisfactory in this area. Minor discrepancies have been discussed with applicable contractor representatives, and it was anticipated that future submittals would include necessary corrective action to fulfill requirements as intended.

Reliability and Maintainability Programs

(U) The initial reliability prediction report for the T700 was received and was undergoing review and evaluation with respect to the contractor's probability of attaining specified requirements at the end of the fiscal year. The RAM (Reliability and Maintainability) analysis of the UTTAS was submitted to Headquarters, AMC, during May.

Quality Assurance Program

(U) Negotiations were completed during the period to strengthen controls on engine material critical characteristics, increasing emphasis and permitting closer surveillance.

Logistic Operations Management

(U) During the 3rd Quarter FY 72, the initial ILS (Integrated Logistics Support) review conference was held with General Electric T700 Engine ILS Manager. During the 4th Qtr FY 72, a Maintenance Management Team (MMT) was established as a subteam to the Integrated Logistic Support Management Team (ILSMT). Contractor and Government ILSMT and MMT members have been identified. The first ILSMT meeting was held 23-25 May 1972, and first MMT meeting was held 13-15 June 1972 at the Contractor's plant in Lynn, Massachusetts. The second ILSMT meeting was tentatively scheduled for September 1972 at the contractor's plant in Lynn, Massachusetts.

(U) Chronological History of major events.

6 Jul 71 AMC DCGMA directed that the PM-UA report directly to the CG of AMC and exempted the PM-UA from all responsibilities for class management of UH-1 series of aircraft.

21 Jul 71 COL J. W. Lauterbach, PM-UA made RECAP presentation to MG J. R. Guthrie, Deputy CG for Materiel Acquisition, at AMC, Washington, D. C.

30 Jul 71 Engine RFQ on UTTAS submitted to Industry.

15 Aug 71 COL L. D. Turner reported as the new Project Manager, Utility Aircraft, vice COL J. W. Lauterbach, who was transferred.

18 Aug 71 COL L. D. Turner, PM-UA, briefed MG J. R. Guthrie, DCG for Materiel Acquisition at AMC, on Materiel Need.

1 Sep 71 Messrs. Joseph Debek and Leonard Quiram from the Office of Management and Budget, DOD, were briefed on the UTTAS program at the Office of the PM-UA.

13 Sep 71 COL L. D. Turner, PM-UA, presented a briefing on Materiel Need to MG J. R. Guthrie, DCG for Materiel Acquisition at AMC, Washington.

28 Sep 71 Industry responded on the Engine RFQ. Contractors that responded are General Electric, Lycoming, and Pratt-Whitney. The Source Selection Evaluation Board (SSEB) located at the US Army Installation, Granite City, Illinois, commenced evaluation of the responses received from the aforementioned contractors. COL Harold L. Baker, USA, HQ, USA Material Group #1 (Log Support) serves as Chairman of the SSEB.

28 Sep 71 COL L. D. Turner, PM-UA, briefed MG Stewart C. Meyer, Director of RD&E, USAMC, on the UTTAS project. Briefing was in connection with a visit by MG Meyer to AVSCOM.

13 Oct 71 UTTAS Materiel Need document reviewed by the Senior Officer Review Board at ACSFOR. Board members were GEN Miley, LTG Williams, LTG Norton, LTG Gribble, LTG Seneff and LTG Tolson.

15 Nov 71 Evaluation of the 1500 SHP Turbine Engine completed.

29 Nov 71 Evaluation results of the 1500 SHP Turbine Engine results to the Source Selection Advisory Council (SSAC).

1 Dec 71 COL L. D. Turner, PM-UA, Messrs. C. L. Busse, C. D. Musgrave, and R. V. Fogarty presented UTTAS RECAP briefing to MG J. R. Guthrie, DCG for Materiel Acquisition at AMC.

3 Dec 71 Decision briefing on 1500 SHP Turbine Engine presented to Source Selection Authority (SSA) by Source Selection Advisory Council (SSAC).

6 Dec 71 The SSA announced selection of General Electric, Lynn, Mass., as the development contractor for the 1500 SHP Turbine Engine.

29 Dec 71 Materiel Need (MN) Document approved by the Vice Chief of Staff, Department of the Army.

5 Jan 72 Utility Tactical Transport Aircraft System Request for Proposal (RFP) released to industry.

6 Mar 72 T700 Engine Contract awarded to General Electric Corp., Lynn, Mass.

8 Mar 72 Personnel of Garrett Corporation briefed BG Turner, PM, on APU.

16 Mar 72 The Source Selection Advisory Council (SSAC) met to initially review the UTTAS evaluation for response to the proposals.

27 Mar 72 The Source Selection Evaluation Board (SSEB) for the UTTAS located at the US Army Installation, Granite City, Illinois, convened. BG George W. Connell, HQ, USAMC, serves as Chairman.

29 Mar 72 Industry responded to the UTTAS RFP. Contractors that responded are: Bell Helicopter, Boeing-Vertol, and Sikorsky Evaluation of the responses received commenced by the SSEB.

31 Mar 72 Source Selection Evaluation of the UTTAS RFP commenced.

13 Apr 72 GEN L. D. Turner, PM-UA made RECAP presentation to GEN H. A. Miley, CG of AMC at HQ, USAMC, Washington, D. C.

9 May 72 Secretary Froehlke visited AVSCOM; and BG L. D. Turner presented a briefing on PM-UA activities.

28 Jun 72 BG L. D. Turner, PM-UA and Mr. L. C. Franzoi briefed GEN H. A. Miley, CG of AMC at Headquarters, AMC, Washington, D. C. on the status of the UTTAS program.

Main Battle Tank, XM803

Background

(U) The US/FRG Cooperative Tank Development Program was initiated by the signing, on 1 August 1963, of a Basic Agreement between the Government of the United States and the Government of the Federal Republic of Germany. In January 1970, both countries agreed to revise the program to a cooperative effort under which each nation had authority to make unilateral technical decisions, as necessary, to meet its own national requirements. In addition, all joint funding was terminated as of 31 December 1969. The mission of the Project Manager, as stated in the Project Manager's Charter approved on 29 January 1971, was unilateral development of the MBT-XM803 and the

continuation of the US/FRG Tank Development Program on a cooperative basis in accordance with DOD Directive 5010.14, AR 70, AMCR 11-6, and other pertinent regulations. Specific RDT&E tasks assigned were:

DA Project Number	Title
1X523619 D 030	Main Battle Tank
1X523619 D 037	Heavy Equipment Transporter
1X523619 D 038	MBT Companion Vehicles

In addition, the Project Manager was responsible for the management of the PEMA program for the assigned system.

(U) The prime contract for development of the XM803 was DAAE07-71-C-0090 awarded to General Motors Corporation on 29 December 1970. The prime contracts for development of the Heavy Equipment Transporter (HET) were DAAE07-71-C-0040 (R&D) and DAAE07-71-C-0092 (APE) awarded to Chrysler Corporation on 21 September 1970 and 29 January 1971, respectively. As of February 1972, no contracts existed for development of MBT companion vehicles. The last effort on companion vehicles was a materiel/cost effectiveness study completed by the Lockheed Missiles and Space Co. in April 1969. Principal in-house development effort consisted of the XM 150 gun/launcher program and the XM 578 ammunition program under direction of USAWECOM. The R&D phase of the XM 578 ammunition program was essentially complete as was the APE phase of XM 150 gun/launcher program.[11]

(U) The aim of the Army's tank development program was to provide qualitatively superior tanks to offset the Warsaw Pact's quantitative advantage. We were looking for a better tank to counter superior numbers of those of our potential adversaries. The new tank sought was to engage and kill moving targets at long range, engage and kill at medium and short range while the tank is on the move, survive under hostile fire, operate effectively in darkness, possess high mobility to reach decision points, and be capable of employing multiple kill mechanisms from its main armament. Such capabilities were planned for the XM803.[12]

---

11 MBT XM803 Termination/Transition Plan, 11 Feb 72, (in files of AMCHO Input documents for Project Manager MBT/XM803, FY 72, file #65-PM-MBT-72.

12 Statement of LTG Wm. C. Gribble, Jr., Chief of Research and Development, DA, to Subcommittee on DOD, Committee on Appropriations, House of Representatives, George A. Malone, Texas, Chairman, 2 June 1971, published in Part 6 of FY 72, hearings on DOD Appropriations, Research and Development, p. 484.

(U) Responding to questions of Mr. Robert L. F. Sikes, Democrat of Florida, LTG Wm. C. Gribble, Jr., Chief of Research and Development, DA, explained the story of the Main Battle Tank effort as a program that "had as an objective in the program reaching pretty far out and I think that is quite clear from the description of the tank (XM803) and its characteristics. Also, I think we did get off to a false start in the sense of international joint development features of this program." Further responding to the question of why the program had taken so long to get anywhere, GEN Gribble explained that the program had been plagued by extremely high unit costs that had been associated with the MBT-70 project regarding hardware and componentry.

(U) GEN Gribble went on to explain that the new XM803 program, which followed the MBT bilateral enterprise between the United States and the Federal Republic of Germany that ended in January 1970, resulted when each nation agreed that they would be free to make unilateral technical decisions in the interest of each nation's program. For the United States, the tank program had been subjected to a cost scrubbing exercise that maintained some of the former principal features, but which also modified reduced costs in some of the other features.[13]

(U) The next question was directed to GEN Gribble by Congressman Wm. B. Minshall who complained that the MBT-70 program had been started in 1963 "and here it is 1971 and we have zero to show for it. We only have a lot of expense." GEN Gribble admitted it had been an expensive program, but protested that "we have a lot to show for it." Admitting that we didn't have a new battle tank ready to field, as had been pointed out by Congressman Minshall, GEN Gribble claimed that the program had produced some "drastically improved components; we have a greater understanding of a lot of problems; we have a handle on the solution of operational and functional problems which will make this a vastly superior tank to anything in the field today." Mr. Minshall interjected that "this wasn't the objective of the program." At this point, ASA (R&D) Hon. R. L. Johnson attempted to help GEN Gribble and stated that as regards the MBT-70 (XM803) tank program, "we are essentially, if you want to put it this way, the victims of our own capabilities because the R&D pilots that came out of the MBT-70 program represent an excellent tank. If we wanted to put that tank as developed with the Germans into production, it would be a better tank than we are going to produce (XM803). The problem with the MBT-70 is that it was too costly." Congressman Minshall added to this by saying that the tank was too sophisticated and possessed a lot of bugs and squeaks which made it too costly.[14]

---

13 Ibid., p. 515-518

14 Ibid., p. 517-521

(FOUO) One item often criticized as too complex was the automatic loader which had tested satisfactorily. BG B. R. Luczak, Project Manager for MBT-70/XM803, in a briefing to MG Bernard W. Rogers, Chief, L&L, DA, reiterated that the automatic loader on the tank permitted rapid fire from the tank on the move and reduced the required crew from four to three personnel.

(U) Secretary of the Army Hon. Stanley A. Resor believed that efforts toward development of the XM803 Main Battle Tank had progressed satisfactorily during the preceding year (FY 71). He indicated that recent program reviews, taken from both the point of view of technology and management resulted in the conclusion that the MBT was ready to proceed with "full scale development this time in a more austere unilateral design than the previous joint effort with the FRG." At this time, March 1971, the testing of the first generation pilot models was essentially complete and the first of many redesigned components were being tested on existing R&D pilots. Long lead time items for second generation pilots were being ordered with first deliveries projected for 1973.[15]

(U) As viewed by the Army Chief of Staff, GEN Wm. C. Westmoreland, "The XM803, an austere version of the MBT-70, is an investment which will lead to the fielding of a tank incorporating all of the latest technological advances. Not only is the XM803 a far superior tank to the M60AT that we now have, but also to the best Soviet tanks which we foresee in the years immediately ahead. In addition, it is designed to accommodate future product improvement in many areas -- fire control, night observation, and ammunition to mention a few. And we are actively exploring the feasibility of using a gas turbine engine for the tank, as the Senate and House Armed Services Committee conferees recommended last year. In our efforts to reduce the average unit production cost of this tank (estimated at first to be about $850,000 and latest $600,000 after austerity) we are concentrating on simplification of components and elimination of all but the highest priority capabilities." [16]

(U) As the Army tank program progressed into FY 1972, there was little evidence from statements made by high Army leaders that during that year the XM803 tank program might be eliminated. Some evidence regarding the future of the program was seen in the program changes soon to come.

---

15 Ibid., p. 526, Statement of Secretary of the Army Hon. Stanley R. Resor, 8 March 1971.

16 (1) Ibid., pp. 545-546, Statements C/S GEN Wm. C. Westmoreland.
(2) MFR AMCPM-MBT, 6 Dec 71, subject: Briefing for Chief Legislative Liaison, DA, 12 December 1971 regarding MBT/XM803 (in file of AMCHO CGAMC files).

(U) The elimination of all FY 72 PEMA funds from the MBT/XM803 program by congressional action in 1971 had forced major changes in assigned tasks which included a return to a pure development effort for MBT XM803 and postponement of trainer development. Because the HASC believed the inclusion of PEMA funds would constitute an overall commitment to production of the MBT, these funds were deleted in the amount of $59.1M. MG John R. Guthrie, DCG for MA, AMC forwarded a letter to ACSFOR on 21 Sep 71 asking that the Asst/Sec/Def David Packard request HASC chairman,Hon. F. Edward Hebert,restore the deleted funds so that program continuity would not be disturbed.[17] The final die was cast when ODCSLOG did not concur in a program change which proposed to transfer PEMA funds for FY 73 to RDT&E.

Organization and Personnel

(U) With the approval of a revised Table of Distribution and Allowances in June 1971, plans proceeded for the transfer to Warren, Michigan, of the functions of the Office of the Program/ Project Manager, Main Battle Tank. On 7 September 1971, the Project Manager officially transferred to Warren, Michigan, and the Office of the Project Manager, Main Battle Tank, became fully operational at that location. A Washington Field Office remained collocated with Headquarters, US Army Materiel Command. Later in the fiscal year, effective 30 June 1972, disestablishment of the Office of the Program/ Project Manager, US/FRG Cooperative Tank Development Program, Warren, Michigan and the Washington Field Office, Main Battle Tank, Washington, D. C. was ordered. Personnel reassignments began shortly after Congress directed termination of the Program and were complete by 30 June 1972.[18]

Technical and Test Activities

152mm Ammunition

(U) In August 1971, based on progress in overcoming the problems on the primary design, it was decided to drop the two backup designs previously initiated and to concentrate on the primary design. The

---

17
(1)MFR - AMCPM-MBT, subject: Monthly update of XM803 Tank Program Quarterly Review and Command Assessment (RECAP) (U), 25 August 1971, signed B. R. Luczak, BG, USA retired. PM-MBT (2) Letter AMCPM-MBT-WF7 to ACSFOR-DA, 21 Sep 71, subject: Proposed letter to Congress Regarding XM803 Program and inclosed letter from Secretary Packard.

18
General Orders No. 120, Headquarters, US Army Materiel Command, 18 May 1972.

Engineering Development (ED) testing on the primary design were completed by November 1971, with no incidents of in-bore failure. Therefore, the confirmatory ED firing program was initiated. The initial phase of the confirmatory ED firing had been completed at the time Congress directed termination of the MBT XM803 program. As a result of a review of the program, the program was reoriented toward accomplishment of program termination and closing actions, all to be taken as rapidly as possible, but in an orderly manner in order to maximize benefit from previous investments. The termination plans included completion of the XM578 development program with the exception of the high density cartridge case. It also included preparation of an R&D Tech Data Package for the XM578 round. The confirmatory ED testing was completed in May 1972, and the R&D TDP was scheduled for release by 30 June 1972.

152mm Gun Launcher, XM150

(U) The second generation scavenger design and test programs were successfully completed in early FY 72. After a review of the program following the termination announcement, the decision was made that manufacture of six of the APE cannons would be completed, and that the APE Tech Data Package would also be completed. These tasks were on schedule and were to be completed prior to 30 June 1972.

Engine/Transmission

(U) Development tests continued on the engine and transmission. A simulated 6,000 mile automatic tape durability test of the engine and transmission simulating cyclic vehicle conditions through a dynamometer was completed in October 1971. Both engine and transmission appeared to be in good condition after completion of the test. Preliminary cold start and cooling tests were conducted in the laboratory. A hot buck mock-up of the power package compartment was completed with the engine, transmission and cooling system instrumented for hot room tests. The tests were cancelled because of program termination; however, the mock-up was delivered to TACOM for testing at a later date. Servo controls for steering, brake and throttle functions were developed for incorporation in the transmission. All design and/or development activities were terminated in December 1971, with hardware and software inventories to be transferred to TACOM for follow-on programs.

Test of Pilot 1

(U) The vehicle hull was modified to the latest power package configuration and the latest components -- engine, transmission with servo controls, separate transmission cooling system, and single actuator hydropneumatic suspension units -- were installed. Following a 50-mile shakedown at Cleveland, the vehicle was shipped to Milford Proving Ground for a 6,000 mile durability test starting on October 1971.

Over 2,200 miles had been completed at the time the program was terminated. Testing continued at a reduced rate until May 1972 to check out corrections made to early problems in the suspension and transmission. A total of 2,845 miles were completed on this vehicle.

Test of Pilot 3

(U) This vehicle was utilized for fire control development and design verification testing.

Test of Pilot 5

(U) Pilot 5 was evaluated against the HEP round, and with bar armor applique, against the 152mm Shillelagh warhead.

Test of Pilot 6

(U) Pilot 6 was used as a contractor facility vehicle and, as such, was a test bed to evaluate the open reservoir, computer, and the driver's night vision equipment. Early in calendar year 1972, all activity was completed on this pilot, which was then shipped to TACOM.

Test of Pilot 7

(U) After installation and checkout of pre-prototype fire control equipment and instrumentation, the vehicle was subjected to those tests necessary to verify that the performance of the fire control subsystem was proper and adequate to permit the test program to proceed to the firing test phase. These tests included the verification of alignment stability performance, evaluation of the accuracy of the weapon control functions under simulated firing conditions, and evaluation of the performance of specific component groups. This vehicle was displayed during the Combat Vehicle Program Review at Fort Knox, Kentucky, during June 1972.

Other tests

(U) During the year, other tests ballistically evaluated the XM803 hull and turret weldment against small arms, against large caliber kinetic energy rounds, and against both infantry carried and tank fired HEAT rounds. Bar armor arrays were evaluated against hand carried HEAT rounds, and the fuel storage was evaluated against tank fired HEAT rounds. Compartmentalization of stowed ammunition for hull front, bustle and hull raar was evaluated against both infantry carried and tank fired HEAT rounds.

(C) Film clips of vulnerability tests of the XM803 tank viewed by Dr. John W. Foster, Jr., DDR&E on 19 Aug 71 at the Pentagon, describing ballistic protection requirements, indicated that the XM803 was not vulnerable to air attack with 20 or 30mm ammunition or attack by small HEAT rounds; however, protection against missiles the size of TOW or Shillelagh were considered a problem. As a result of mine tests, hydraulic, electric and fuel lines had been relocated from the floor of the tank for greater protection. It was also told to Dr. Foster that a shaped charge could penetrate the floor of the tank and cause crew damage. Armor could be placed under crew seats; however, the tank was also having weight problems in addition to increased costs. Additional weight could affect vehicle range, acceleration and mobility.

(FOUO) The possibility of placing the turbine engine in the XM803, which at the time was ready for testing at Yuma in R&D Pilot 2, was not considered because of the engine's high acquisition cost. Even though the turbine was thought of as the ultimate power plant for the tank, the break-even point would be in the 1985 time frame and could not be reached in peacetime. It was Dr. Foster's view that the estimated increase of 5% on costs for using the turbine would be more than offset by improved performance, improved cost start capability, decreased noise level and decreased smoke level. The increased horsepower of the turbine would not cause any reliability problems for other components. For example, the transmission of the tank was designed for the turbine engine.[19]

MBT Engine

(U) Prior to 1 Jan 70, the Main Battle Tank development had been carried on jointly with the Federal Republic of Germany (FRG). The German Daimler-Benz MB873 KA liquid-cooled 1475 US horsepower multifuel engine had been selected for the joint tank in late 1968 over the US Continental AVCR-1100-3 when operating at 1475 horsepower. Studies, however, indicated that the 1250 HP would adequately power the tank, and that the Continental engine would be entirely viable with relatively minor redesign if rerated at 1250 HP. When the US/FRG joint program was reoriented to a cooperative effort, and the US was free to select components unilaterally, the Continental AVCR-1100-3B 1250 horsepower engine was selected. House Defense Appropriations Subcommittee staff has consistently questioned this choice. Hence, the subcommittee hearings and its Surveys and Investigations Staff (S&I) addressed the subject of engine selection in some detail on 23 Aug 71. The S&I staff report indicated that prior Army statements gave rise to doubts as to whether the (MBT 70/XM803 engine selection) had been based on an objective, impartial and comprehensive analysis of the situation. The Army submitted a paragraph by paragraph rebuttal of the report.[20]

---

19 MFR AMCPM-MBT to AMC Command Group, 20 Aug 71, subject: Meeting with Director, Defense Research and Engineering, 19 Aug 71 (in AMCHO files of CG, AMC).

20 MFR, AMCPM-MBT-WF, 26 Aug 71, subject: Meeting with House Defense Appropriations Subcommittee Staff concerning XM803 Engine Solution (in AMCHO files of CG, AMC).

Procurement

(U) At the beginning of FY 72, there were 20 active contracts for MBT XM803. During the year, one contract was awarded, 15 completed and one terminated, leaving a total of 5 contracts in force at the end of the fiscal year. Of these, one was with General Motors Corporation and was to be continued under the new Main Battle Tank Program. The other four covered the effort on ammunition and were scheduled for completion prior to December 1972.

(U) With three contracts awarded during FY 72, and two active at the beginning of the fiscal year, a total of five contracts were active for the Heavy Equipment Transporter. All five of these contracts were under the jurisdiction of US Army Tank-Automotive Command. During FY 72, the movement of facility equipment, production material and the renovation of the area was completed in TACOM. Transfer of personnel was not necessary due to termination of the program. The equipment was renovated and installed by General Motors. The area at TACOM in Building 4 has been separated into two areas to provide co-usage by General Motors and TACOM until such time as General Motors required the entire area for the follow-on tank program.

Special Studies and Projects

Review and Command Assessment Program (RECAP)

(U) The final RECAP was presented to the Commanding General, Army Materiel Command on 14 February 1972, with major emphasis being placed on the proposed termination plan.

Risk Analysis Study

(U) In October 1971, a team from the office of PM MBT, assisted by Battelle Memorial Institute, completed a major Risk Analysis Study of the MBT XM803. The study results were briefed to HQ AMC in March 1972 and released to DA the following month. The study results indicated a high probability of a one-year schedule slippage and a corresponding overrun in planned development costs. Significant technical risks existed only in the reliability, durability, and maintainability of selected components.

Production Cost Study

(U) An updated production cost study of the MBT XM803 was completed in August 1971. The study was prepared by WECOM under the guidance of personnel from the office of PM, MBT with detail data input from General Motors. Commanding General, AMC, was informed of the study results on 18 August 1971. He directed that the study be held at AMC

pending the follow-on study to develop cost reductions. This follow-on study was scheduled to start in the fall of 1971 and be completed in June 1972. The study was cancelled when the project was terminated by Congress.

Integrated Logistic Support

(U) This aspect of the program proceeded on schedule during this fiscal year. System specification and component specifications were finalized and approved prior to December 1971. Contractual coverage was instituted to include preparation of technical publications for pilot vehicles, conduct of training courses for testing personnel, and selection of repair parts to support pilot vehicle testing. Work on the malfunction detection and isolation equipment proceeded on schedule. Application of the Land Combat Support System to the vehicle was studied by RCA and MICOM. All planning, however, ceased with termination of the program and efforts turned to disposal and transfer of residual material remaining after the termination.

System Development Plan

(U) DA approval was obtained to distribute the 15 October 1970 basic SDP and the first revision of 31 December 1970. Action on the revised SDP for the purpose of termination of the unilateral MBT XM803 Program was completed.

Qualitative Materiel Requirement (QMR)

(U) A proposed revised QMR for the XM803 was pending in Department of the Army at the time Congress directed termination of the program. Consideration of conversion of the QMR to the Materiel Need Concept ceased with termination of the program.

Joint Responsibility Agreements (JRA)

(U) Under PROMAP-70, a requirement was established to prepare JRAs to delineate the responsibilities between project managers and supporting commodity commands. JRAs were completed between the Project Manager, MBT, and MUCOM, TACOM and WECOM. Efforts to complete JRAs with other commands ceased with termination of the program.

Heavy Equipment Transporter

(U) This program proceeded on schedule during this fiscal year. With termination of the MBT XM803 program, responsibility for the Heavy Equipment Transporter was transferred to Tank-Automotive Command.

Financial

(U) With the fluctuation in the amounts of funds expected to be appropriated by the Congress, financial planning was subject to a multitude of changes during the first six months of this fiscal year. Following the Congressional action to terminate the program, financial planning consisted of cost estimation for the special termination instructions issued to General Motors. A total of $20 million was authorized by Congress for MBT XM803 for FY 72, to cover all termination costs. By the end of the fiscal year, it was found that this amount was in excess of actual requirements and a substantial sum was returned to AMC for other uses.

Termination XM803

(U) As a result of Congressional actions on 15 Feb 72, GEN Miley requested permission to terminate the project management for the XM803. Approval was granted by Sec/Army Hon. Robert F. Froehlke effective 30 June 1972.[21]

(U) As submitted to Congress, the President's Budget for FY 72 requested $27.5 million RDT&E funds and $59.1 million PEMA (APE) funds for Main Battle Tank XM803. The Defense Authorization Bill as approved by Congress authorized a total of $59.1 million for MBT XM803, all in RDT&E. No PEMA funds were authorized. The Defense Appropriations Bill approved by the House of Representatives directed termination of the MBT XM803 program, but authorized $20 million for a new Main Battle Tank Program. The Senate version of the bill provided for $50 million for the Army's tank programs, and directed the Secretary of Defense to determine if these funds should be expended for the MBT XM803 Program or for a new tank development program. The compromise version of the Defense Appropriations Bill, agreed to by the Joint Senate/House Conference, directed termination of the MBT XM803 Program and provided $20 million for termination costs. It also provided $20 million to be used for the initiation of a new tank prototyping program. The compromise version of the bill was approved by the Senate and the House on 14 December 1971.

(U) The Commanding General, Army Materiel Command, directed that the basic concept of an orderly termination be adopted in order to maximize the return on previous investments in the program. A Notice of Termination of Contract was issued to General Motors in January 1972. A detailed termination plan was approved by the Commanding General, AMC, in February 1972.

---

21 (1) Letter, AMCPM-MBT, HQ, USAMC, 15 Feb 72, subject: XM803 Termination, signed Miley. (2) Letter, SA, Hon. Robert F. Froehlke, 20 Apr 72, subject: Termination of Project Management for the US/FRG Tank Development Program (MBT-70/XM83) signed Froehlke (in file of CG, AMC in HQ AMCHO).

(U) The essential feature of the orderly termination was the fabrication and assembly of one second generation (APE) vehicle (Pilot Vehicle No. 7). The bulk of all program hardware and software assets were delivered to US Army Tank-Automotive Command for use in the new Army Tank Prototype Program. Major termination actions were accomplished according to planned schedules and were well within estimated costs. Final inventory disposition and claims settlement would require all of FY 73 and was expected to extend beyond that time. The termination plan provided for deprojectization on 30 June 1972. This date was approved by the Secretary of the Army on 20 April 1972. All termination activities were proceeding on schedule and were to be completed by 30 June 1972.

MBT/XM803 Termination - FRG Proposal

(U) As a result of the budgetary cuts by the Congress, the United States was forced to formally terminate the MBT/XM803 program by 30 June 1972. In response to GEN Luczak's announcement of mid-January 1972 of the impending termination on 18 January, German plans to continue the program until the end of 1973, and possibly beyond then, were made known to the Hon. Robert L. Johnson, Assistant Secretary of the Army. This was allowed under Article XIB of the government agreement of 1 August 1963 by which the US government was obligated to use its best endeavors to ensure, under terms and conditions to be negotiated, that the work could be completed in a satisfactory manner by the German government. In this connection, on 18 January 1972, the Bonn government gave Army representatives a list of hardware and software. The German side was interested in delivery of these items.

(U) Another matter that needed resolution regarding the January 1970 revision of the program, was the agreement that common funding should end on 31 December 1969. The settlement of accounts which preceded this decision showed a German credit in the amount of 3 million dollars. In view of internal difficulties, the US at the time requested that this German credit not be shown as a reimbursement claim. It was agreed, therefore, that this credit of 3 million dollars should be used to cover markups on the development and preproduction cost, chargeable when US components from continued US development were made available to the German government. Since termination of the program on 30 June 1972 was envisioned by the US, a call-up of such components was no longer possible. Consequently, the German government put in a claim for payment on February 8, 1972. To facilitate a settlement, the German government was prepared to negotiate on suitable ways to effect a set-off.

(U) The FRG also requested continuing mutually beneficial cooperative tank development effort on a modified and reduced basis based upon requirements already in force under the terms of an agreement: "to facilitate the exchange of patents and technical know-how for defense purposes" of 4 January 1956. Each government was required to make

available to each other user rights from their respective tank development efforts. But over and beyond such cooperation, the FRG requested the creation of a successor organization to ensure a mutual exchange of information, observers, hardware and software beyond the scope of existing Data Exchange Agreements. In this context, the FRG was thinking in particular of German participation in the US Army Tank Prototype Program and of US participation in the development and preproduction engineering of the Leopard II. Initially, the FRG proposed respective Liaison Offices (Article III of the government agreement of 1 August 1963) be retained until 31 December 1972.[22]

Continuing International Program

(U) The Program Coordination Board met in Warren, Michigan, in September 1971. At that time, the German Program Manager outlined German plans for their continuing program. The US Program Manager described the US desires for fabrication and test of second generation pilots, but was unable to give firm plans since the FY 72 appropriations bill had not yet been approved by Congress. The two Program Managers agreed to meet in Bonn, Germany, following passage of the Appropriations Bill.

(U) In January 1972, the Program Coordination Board met in Bonn, Germany. At this meeting, the US Program Manager notified the German Program Manager that the MBT XM803 program was terminated. The primary questions raised by the German Program Manager concerned the $3 million credit account granted to the FRG during the January 1970 negotiations to change the program from a joint to a cooperative effort and the continuation of liaison between the two countries. The German position on the $3 million credit account was that it now became a cash obligation of the US Government since its original purpose could no longer be carried out (see MBT Historical Summary for FY 70). The US position was that approximately $175 million was expended by the US between January 1970 to January 1972 to develop components for the MBT XM803, and that this provided an excellent "shopping list" for the German Government. No agreement could be reached at the Program Manager level. The German Program Manager stated that the German position would be communicated to the Assistant Secretary of the Army (Research and Development) by the Deputy Chief, Armament Division, Federal Ministry of Defense. The German Program Manager also outlined German desires for a continuation of cooperation in tank technology, and for a continuation of the liaison offices after 30 June 1972. Since the US Program Manager had no authority to negotiate on activities past the end of June 1972, these desires on the part of FRG were also to be included in the letter to ASA (R&D).

---

22 Ministerialdirecktor Dipl.-Ing. A. Wahl, Deputy Chief of Department II/T Bundesministerium der Verteidigung, to the Hon. Robert L. Johnson, Assistant Secretary of the Army (R&D), Dept/Army, Wash., DC, 8 Feb 72, (in AMCHO files of CG, AMC MBT).

(U) On 8 February 1972, MinDir Wahl, Deputy Chief, Armament Division, FMOD, wrote to ASA (R&D), outlining German views and desires. In his answer on 11 April 1972, Secretary Johnson, ASA (R&D), agreed that the liaison offices should remain through 31 December 1972 and offered his suggestions for liquidation of the $3 million credit account. As far as future cooperation in the field of tank technology is concerned, Secretary Johnson stated that he would request the Commanding General, AMC, to recommend the manner in which this could best be accomplished. On 4 May 1972, MinDir Wahl suggested that the Program Coordination Board meet and develop a Memorandum of Understanding covering all these aspects. The MOU would be forwarded to ASA (R&D) and to the Deputy Chief, Armament Division, FMOD, for ratification.

(U) The last meeting of the Program Coordination Board was held in Washington on 14 to 16 June 1972. It was preceded by a working group meeting on 1 and 2 June 1972. The working group developed a draft Memorandum of Understanding which was then forwarded to each Program Manager for consideration prior to the PCB meeting. During the PCB meeting, the two Program Managers exchanged their national positions on the $3 million credit account and the continuation of US/FRG cooperation in tank technology. The FRG position was that the $3 million credit account was now an obligation of the US Government which should be paid in cash. The German Program Manager stated that it would be difficult to enter into any agreement for future cooperation until the account was settled. The US position was that the original provisions for liquidation of the account should stand. After two days of negotiation, agreement was reached that the Program Coordination Board would recommend to the ASA (R&D) and Deputy Chief, Main Division II, FMOD, that (a) there would be a continuation of cooperation in tank technology between the two countries under guidelines set forth in a Memorandum of Understanding signed by the two Program Managers, and (b) the liquidation of the $3 million credit account would be as follows: The surcharge for the pro rata share of non-recurring costs applicable to future FRG purchases of US Army production materiel will be waived in the amount of $2.5 million. This recommendation was also committed to writing in the form of a Memo of Understanding signed by the two Program Managers. The Program Managers agreed to forward these recommendations to their higher authorities for approval, and a joint letter was prepared. Signature of these final Program Coordination Board Documents took place on 16 June 1972.[23]

(FOUO) The US interest in the FRG development of the German Leopard II-K (Gun tank) and the Leopard II - FK (Missile tank) was seen to be minimal. It was concluded therefore, that there was little

---

23 Memorandum of Understanding between US and FRG, 16 June 1972, subject Continuation of US/FRG Cooperation in Tank Technology signed B. R. Luczak (US) and Hans Eberhard (FRG).

to be gained by a continued exchange of information. (See Memo AMCPM-MBT for ASA R&D, 27 Sep 71, subject: US/FRG Program Coordination Board Meeting (U), all in CGs file, AMCHO.)

(U) Under the MOU of 16 June 1972, the two governments agreed to exchange information, negotiate regarding use of each other's data, and allow for observation of tests of each country consistent with each other's national laws and policies in the tank programs of each nation.

(U) The discontinuance of the Office of the Program/Project Manager, United States/Federal Republic of Germany Cooperative Tank Development Program, Main Battle Tank XM803 was effective 30 June 1972. The Washington Field Office, Main Battle Tank, Army Materiel Command, Washington, D. C. was also discontinued on the same date. No further correspondence was to be addressed to either of the above offices after 15 June 1972, and that these offices be removed from distribution lists effective 15 June 1972. The functions of the Liaison Office, Bonn, Germany, were transferred to the US Army Tank-Automotive Command, with duty station Federal Ministry of Defense, Bonn, Germany. After 15 June 1972, correspondence pertaining to the US/FRG Cooperative Tank Development Program, Main Battle Tank XM803 was to be directed as follows:

Contractual activities: Termination Contracting Officer, Defense Contract Administration Services Region, Cleveland, ATTN: DCRO-CT, Federal Office Building, 1240 East Ninth Street, Cleveland, Ohio 44199;

152mm Weapon System: Commanding General, US Army Weapons Command, Rock Island, Illinois 61202;

All other activities (including US/FRG Technical Coordination Group actions: Commanding General, US Army Tank-Automotive Command, Warren, Michigan 48090. [24]

(U) On 30 June 1972, GEN Luczak reported to GEN Miley that all of his termination responsibilities had been discharged, and that the CG, USA Tank-Automotive Command would assume responsibility for residual activities for the terminated program the next day. The termination costs proved less than programed and $2.53 million of an appropriated $20 million was returned to AMC. [25]

---

24 (1) General Orders Number 120, HQ, US Army Materiel Command, Washington, D. C., 20315, dated 18 May 1972. (2) Letter AMCPM-MBT, B. R. Luczak, Brigadier General, USA Retired, Project Manager - Main Battle Tank, Department of the Army Cooperative Tank Development Program Main Battle Tank, XM803, United States/Federal Republic of Germany, 18 June 1972. (3) Letter, Secretary of Army Hon. Robert F. Froehlke, 20 April 1972, thru CS to CG, AMC, subject: Termination of Project Management for the US/FRG Tank Development Program (MBT-70-XM803). (All in AMCHO file of CG, AMC-MBT.)

25 Letter, BG B. R. Luczak, PM - MBT/XM803 to CG, AMC, 30 Jun 72, subject: MBT/XM803 Termination.

US/FRG Joint Engineering Specifications and Standards Working Group

(U) The MBT was envisioned potentially as the tank to be used or adopted by all NATO countries. Viewed thus, the MBT PMB charter in 1963 established the US/FRG Joint Engineering Specifications and Standards Working Group. The US portion of the group consisted of 3 members. The group studied and evaluated the German International Standard Organization and NATO Specifications and Standards. The vehicle was to be 50% metric-oriented. As part of the above, the group developed a set of four (4) joint US/FRG Design Manuals covering representative areas such as dual drawing system, conversion of dimensions with metric analytical standards, configuration management, materiel selection and conversion, bearings, gears and splines, and electric drawings and items. General Luczak recommended that the team be kept intact so that their expertise could be utilized by AMC, DA or OSD in future metrification problems.[26]

Project Manager's Assessment - 1963 - 1972*

International Aspects

(U) The basic agreement which set up co-equal US/FRG Program Managers had both advantages and disadvantages. The disadvantages began to outweigh the advantages as the concepts began to appear in hardware form. The difficulty of reaching easy agreement with the multitude of national factors involved on both sides certainly cost us time and money. The amount of each can only be estimated. The last two Project Managers, (MG Burba and MG Luczak) both recommended the termination of the Joint Program; however, it was not until Mr. Packard came to the same conclusion in the Spring of 1969, that the action to terminate the Joint Program was finally taken, effective January 1970.

(U) The language and social customs barrier had less impact than may have been expected. The requirements for translations, for rather rigid protocol, and so forth, while at times annoying, were not really very difficult to work around. The differences between our two countries in such matters as background rights, licensing rights, and modus operandi between Government and business resulted in problems that required considerable time and talent to solve. An example of this is the 10 percent account.

---

26 Letter BG B. R. Luczak to CG, AMC 8 Feb 72, subject: International Standards/Metric Advisory Team in files of CG, AMCHO.

*This portion was submitted by the former Project Manager for the MBT/XM803, BG B. R. Luczak as a MFR dtd 27 Jun 72, subject: Lessons Learned from Program Manager Viewpoint (in files of HQ, AMCHO).

(U) There was a difference in philosophy of contractor supervision by the two Governments that became apparent and had an effect on the program. In Germany, the contractor was more independent and flexible in his action and freer from Government control. There were advantages and disadvantages from this setup. One of the principal disadvantages was a lack of knowledge of how well the German contractor was really doing, because he could conduct his tests free from Government observers. The result was that we only knew what the German contractor wanted us to know up to a certain point. Examples are the difficulty with the Rheinmetal autoloader which we had to eventually take over, and the cooling problem on the DB engine. The cooling problem became known only after very considerable pressure to allow observation by the US and FRG of contractor tests.

(U) There was a difference in development philosophy between the two Governments. To the AMC Project Managers, the FRG did not appear to be nearly as highly motivated to reach an early conclusion of the development as was the US. The result was that the US had to send a group to Germany for a period of almost two years in order to really get the project off the ground. In many cases, the US would work long hours and forego leave in an effort to save time, whereas the German counterparts would insist on no traveling on weekends and would take all of their leave and "kur" without apology.

(U) Discussions with the FRG almost without exception were conducted in an atmosphere of respect, frankness and cordiality. However, the bargaining and negotiations were sharp and professional. National pride and prestige colored all the actions and the negotiations. In that sense, it was on a par with money as a dominant element of the Joint Program, i.e., who pays for what.

(U) The strategic objectives of the FRG and the US were different. The US needed a tank that could fight above the arctic circle, on the equator, and in between with all the implications on cost and time of developing such a tank. The FRG, whose strategy is a defensive one around the heartland of Europe, did not have the requirement for these temperature extremes and therefore, was not enthusiastic about spending money on some of the US requirements, such as maintaining full engine power at 125°F. The users of both countries had preferences that impacted on the program. As an example, the FRG users preferred water cooled engines, the US air cooled.

(U) Managerial techniques and philosophies were quite different in the US and the FRG. The organization and techniques of project management were virtually unknown to the FRG. One of the results was that our ability to act quickly was not always matched by the FRG.

(U) The metric vs inch controversy resulted in several surprises. One was that there was a distinct lack of standardization among the metric nations in such things as thread dimensions, etc. Much work had to be done at cost of time and money in this area. This program, like many others, provides justification for the US to move from the obsolete foot pound system to the metric system of weights and measures.

(U) Testing procedures in both countries were different, impacting the development. The US participates in contractor tests to a greater extent, and tests a small number of samples prior to gearing up for production. The FRG, in general, does not participate in contractor tests; it concentrates on a sizeable number of "production" items that are tested by tactical units. Production, in the meantime, is halted until the modifications resulting from the tests can be incorporated in the next batch. In the case of tanks, such as the Leopard I, there were several iterations of this process.

(U) Because of the international agreements, the US prime contractor, General Motors, could not be given the flexibility of a normal "prime contractor" during the joint program. The contractor understood the reason for this, but he chafed under this restriction. Also, he rationalized many shortcomings that were brought to his attention as being caused by the lack of responsibility and flexibility available under the contract.

Congressional Relationships

(U) In the opinion of BG B. R. Luczak, "in spite of the fact that we briefed the staffs and committees of Congress on every possible occasion and demonstrated hardware whenever possible, the facts concerning the MBT 70 and the XM803 were not well understood by those in Congress and on their staffs who were making decisions." As an example, GEN Luczak told of a Congressman who had been on the House Appropriations Committee during the entire time that the MBT was in being, i. e., eight years, and presumably received briefings wherein we stressed that the highly accurate shoot-on-the-move capability was an outstanding feature of the design and one reason for the high cost of the tank. During a speech on the floor of the House, the Congressman made the statement indicating that "the XM803 could not shoot on the move, but that Russian tanks could and therefore, we should kill the MBT." In reality, of course, the reverse was true.

(U) On 4 May 1971, the Surveys and Investigations Subcommittee of the House Appropriations Committee issued a preliminary report entitled "Overall Tank Program of the Department of the Army, MBT/XM803." This report contained some 47 items, most of which were critical and also inaccurate. The PM's office compiled a point-by-point reclama and coordinated it within the HQ AMC staff and forwarded it to Department of the Army for issuance to the Appropriations Committee. The decision was made at DA to hold the reclama so that the new Secretary of the

Army (Mr. Froehlke) could sign the letter of transmittal. This caused a delay of several months. In the absence of a timely reclama the committee staff assumed that the points made in the report were accurate. The reclama did not get to the Appropriations Committee until the decision to terminate had in reality been made.

(U) The "cost" of the MBT 70 and the XM803 was mis-stated on many occasions, particularly by Congress. Comparisons were made comparing a "million dollar XM803" which included all program costs, with other tanks whose cited costs were limited to hardware only. To GEN Luczak there seemed to be no easy way "to overcome this situation of Congress pulling numbers out of context to 'prove' a point."

Intra-Army Relationships

(U) GEN Luczak points out that the "armor community" cannot seem to agree on what it wants in the way of a new main battle tank. It apparently views with suspicion anything that AMC comes up with. The feeling at Ft. Knox seems to be that AMC uses time and money limitations as excuses for pushing on to reluctant users the materiel that AMC thinks is best for them. There was also internal dissension within the armor community concerning the role of the tank - if any. This debate between the helicopter advocates and the tank advocates was not unknown to the Congress, and was used by the staffs of the Congress, sometimes to the detriment of the Army.

(U) In GEN Luczak's opinion in retrospect, the armor community should have insisted on drastic changes to the XM803 concept during the July to December 1969 when the concept was being modified reasons of austerity. Had this been done, at least two years and roughly $175 million would have been saved that would be expended in the intervening time on the XM803 with its three-man crew, missile and autoloader that the armor community was apparently unwilling to accept.

(U) According to GEN Luczak's account during the tenure of Mr. Russell O'Neal as Assistant Secretary of the Army for Research and Development, ASA (R&D), control of the program was exercised personally by him. He held weekly meetings with the Program Manager, in which progress and problems were discussed and direction received. There was also considerable direction received from the Director, Defense Research and Engineering (DDR&E) Staff during the innumerable briefings that had to be given. Toward the end of Secretary O'Neal's tenure, the meetings (at the request of the Program Manager-PM) were put on a monthly basis. Up to this period of time, GEN Luczak recalls, the AMC staff, except for routine administration, for the most part was not involved with the MBT. The PM kept the CG, AMC informed as to progress and major problems. However, coincidental with the assumption by Secretary Johnson as the new ASA (R&D), there was a significant change in the control of the PM. The control shifted from ASA (R&D) to the CG, AMC.

(U) While monthly meetings continued with the ASA (R&D), a representative of the HQ AMC was present during these discussions, usually a General Officer, Gradually, the Deputy Commanding General Materiel Acquisition (DCGMA), moved in to give direction and control to the PM. This period of time was a painful adjustment with the PM. The PM sought his level of authority and responsibility in the face of what seemed to him to be a passing down of control from ASA (R&D) to CG, AMC, and notification to the Project Manager of a deliberate change of policy. The involvement of the HQ, AMC staff tended to make the Project Manager's Office not too different than any of the functional segments of the HQ, AMC. This meant that the staffing of papers was not as determined by the Program Manager, but as specified in the AMC Regulations, with the resulting loss of time, flexibility and initiative. While the reasons for the change in control can be appreciated, the imposition of the rules of routine management generally associated with normal functional areas and Command agencies, as opposed to extraordinary management generally associated with Program Managers, expended time and inhibited efforts to exercise agressive initiative.

(U) In the view of GEN Luczak, a Project Manager should be chosen in whom the CG has complete confidence. This Project Manager would then determine the extent of coordination required, on a case by case basis, since he is in fact a member of the AMC HQ staff. This would tend to restore the capability of the Project Manager to speed up his operations and to be more efficient and effective. In the case of the MBT 70 and XM803, according to GEN Luczak, there was a difference between the language of the Charter insofar as PM authority for responsibilities was concerned, and the actual control imposed upon the Project Manager.

(U) Government laboratories at Commands, for the most part, were responsive and ably supported the Project Manager and, delegation by the Project Manager, MBT, to the CG of the Weapons Command of responsibility for the weapon system, worked well. This was due primarily to the fact that the CG, Weapons Command, stationed two very competent engineers in the Project Manager's Office on a full-time basis. Their salaries were paid by the Project Manager, but their job rights and so forth resided at Weapons Command. While the Munitions Command chafed under the setup that made them subordinate to the Weapons Command for the weapons system development, problems between the two organizations can be characterized as minor. This was due as much as anything to the objectivity of the two CGs involved.

Contractor Relationships

(U) General Motors, being a successful, functionally-oriented corporation, refused to alter its organizational or procedural setup to accommodate the Government's requests. General Motors often repeated a statement that the Government constitutes less than 4% of their business and more than 96% of their headaches, and that they

would not change to accommodate the Government. The result was that while they called the organization project managed, the authority really resided with the General Managers of the Divisions, such as the Allison Division and Delco Division. The Project Manager, a member of the Detroit Diesel Allison Division, placed work orders on other divisions of General Motors. In effect, they acted as subcontractors. In addition to the management inefficiencies of this setup, the procedure tended to cost more, since overhead items such as Independent Research and Development and Bid and Proposals allocations were paid twice. They were paid once in the so-called subcontract division, and then treated as a material charge eligible for the burden of the receiving division. In spite of strong pressure up to the ASA R&D and ASA I&L and CG, AMC, GM gave only lip service to the "Project Manager" concept. The Divisions remained absolutely autonomous.

(U) General Motors did give high level management attention to the problems of the Government Project Manager. Ready access was afforded up to Vice-President level, although this channel was used only when absolutely necessary. During the cooperative program, i.e., after January 1970, the relations with GM were quite good. However, there was no doubt that they were a high-priced contractor. Attention had to be given to their expenditure of Government monies. In one instance, this resulted in charges of "over management" by GM in a complaint to the Deputy Secretary of Defense. An example of their lack of proper supervision was a meeting in Washington to which they should have sent one person or at the most two. They sent six people with the resulting high cost of travel.

(U) The use of "directed subcontractors" to General Motors resulted in the following facts: GM did not supervise the directed subs properly even though they were drawing a fee for doing so; they placed blame for shortcomings on the subcontractors whether it was entirely the subcontractor's fault or not. The directed subcontractors, in the case of the Joint Program, were Teledyne, previously called Continental Motors, and National Waterlift. Going to a cooperative program gave the Government the opportunity to contract with General Motors and give them the responsibilities of a true "prime contractor." The award fee contract proved to be ineffective. The contractor felt that anything below a 100% award was a charge of incompetence to be answered with vehemence and at great length. The Government did not have the capability of truly judging how well the contractor was doing in detail. If an award fee type contract is to be effective, it should narrow the parameter for award to be one solely of costs. Delco Division of General Motors took the separate German Night Sight, the Secondary Weapon and the Commander's Sight and combined it into one component in a remarkably short time. This performance and the Allison Division's work on the autoloader represented the highlight of GM achievements. The new sight combination substantially reduced the hardware cost of the tank without a proportional decrease in capability.

Miscellaneous

(U) Like many other programs, the MBT 70, in its early stages, was a victim of a dilemma involving the requirement to make an estimate of development costs in the absence of good information as to what the final concept would be, and the intuitive feeling that if this estimate was very high, the program might be killed by Congress in its inception. The result was that numbers such as $40 million were first used by the Army, and $80 million first used by the Contractor, as being the US portion of the Joint Development. As events turned out, these low numbers came back to haunt us. A substantial portion of the increase could be attributed to the time and money cost of the Joint Program, but the bulk of it was due to (1) a premature estimate made in the absence of hard line drawings and with "rose-colored glasses";(2) a 1965-1971 period of galloping inflation;(3) a high-cost contractor and;(4) development problems such as the FRG autoloader failure,and our trouble with the Teledyne engine;(5) a 100% success program was the basis of the estimate.

(U) Based on the experience of the XM803, under normal circumstances, the development of a new major caliber gun with a complete gamut of ammunition will take somewhere between six and ten years, depending on the priorities, pressures, availability of funds, availability of design data in that caliber range, etc.

(U) Both the designers and users of tanks seem to lack enthusiasm for making the tank safer and more comfortable than they are now. Components such as seats, soundproofing material, etc.,do not arouse much interest. Much could be learned from the aerospace industry to make the tank a little bit more livable. The parametric design study undertaken with Lockheed during the concept development phase of the MBT was quite useful in indicating design parameters. The use of this technique in later evaluation of the capabilities of the MBT and the XM803,was handicapped by the fact that there was no apparent way to evaluate such things as night fighting capability and the effect of cross country speeds.

(U) The Development Concept Paper (DCP), as a control on management for the Office of the Secretary of Defense, simply did not work in the case of MBT-70/XM803. The periods of time in which it was current in the last four years were negligible. The thousands of valuable man-hours used to compile and staff the various versions of proposed DCP were largely wasted. It became essentially a historical document. In correlating development and prototype fabrication time on the MBT-70/XM803 projects with the presently planned Army System Acquisition Review Council (ASARC) phase II, the following is indicated:

	ASARC II	1st Pilot Fabricated	Last Pilot Fabricated	Months/Time
MBT 70	Aug 65	Mar 69	Jan 70	44/54
XM803	Jun 70	May 72	Jul 73	24/38

New MBT - MN (Materiel Need)

(U) In January 1972, GEN Bruce Palmer, Vice Chief of Staff, Army, assigned new responsibilities for a new Main Battle Tank Development giving primary responsibility for the Materiel Need (MN) development phase to CG, USACDC. This called for him to set up a special MBT task force, subsequently chaired by MG Desobry, CG, Armor Center and School to include CONARC and USAMC representatives for a period of time up to about 1 Aug 72. The task force was to develop a new materiel need concept based upon previously conducted studies, analyses and test results. The new MBT configuration was to be derived from parameter design, cost effectiveness, and qualitative analyses. The new MN was to be supported by appropriate documentation for use before OSD and congressional committees.[27]

CHAPPARAL/VULCAN*

Organization - Personnel - Mission

(U) At the beginning of FY 72, the manpower authorization for the Project Manager's Office was 6 military and 26 civilians. The manpower authorization for the Assistant Project Manager's office located at USAMICOM for CHAPARRAL and the Forward Area Alerting Radar (FAAR) was 3 military and 34 civilians. As of 26 Jun 72, the APM MICOM office was terminated.

(U) The Project Manager has the responsibility for the definition, development, fielding and support of the Air Defense System comprising the principal weaponry for the Divisional Composite Air Defense Battalion and other air defense applications. Major materiel items are self-propelled CHAPARRAL surface-to-air guided missile system, the self-propelled and towed configuration of the companion VULCAN gun systems and the Forward Area Alerting Radar.

---

27 Letter, GEN Bruce Palmer, VC/S Army to CG, USCONARC; CG, USAMC; CG, USACDC, subject: Main Battle Tank Development Program, 20 Jan 72, in files of CG in AMCHO.

*This portion of the Project Management Annual Report of Major Activities was furnished for the most part by Project Manager of Mission.

System Progress

(C) The CHAPARRAL/VULCAN activating and deployment schedule called for activation of 19 Headquarters and Headquarters Detachment batteries, 27 VULCAN (SP) batteries, 17 VULCAN (towed) batteries, and 31 CHAPPARAL batteries.[28]

CHAPARRAL Air Defense System Procurement

(U) A contract was awarded by USAMICOM in the amount of $2.7M to Aeronutronic Division of Philco-Ford for modification and delivery to the government of 88 MOD-1A Guidance Control Group (GCG) units. A contract was awarded to Raytheon for 2,000 GCG's in the amount of $10.6M.

CHAPARRAL Missiles and CHAPARRAL Ground Equipment Deliveries

(U) There were 1,491 missiles assembled at Red River Army Depot in FY 72, making a cumulative total of 6,091 missiles delivered to inventory thru FY 72; of this total, 4,548 were tactical missiles and 1,543 were training missiles. The last four Fire Units were delivered in July 1971, meeting the total requirement of 448 Fire Units delivered.

(C) The success rate for all troop missile firings thru FY 72 is 84.2 percent based on 1,174 valid firings, as shown below:

Category	Fired	Valid	Successful	Percent Success
CONARC	1059	986	832	84.4
ASP	196	188	156	83.0
TOTAL	1255	1174	988	84.2

28 Message DTG 222230Z Mar 72 from DAFAD.

(C) The Draft Materiel Need Product Improvement, MN(PI) and DCP-95 address improvements to the CHAPARRAL System. These improvements were based on the system being in the inventory at least until 1980 and on meeting the threat for that time frame. Improvement of the CHAPARRAL System began with the approval, in 1970, of the directional doppler (DIDO) fuze and the blast fragmentation (BF) warhead programs to improve warhead burst control, improve countermeasures capability, and provide improved lethality so as to meet the system effectiveness requirement of .50 probability of kill. These items are currently in ET/ST (Engineering Test/Service Test) by TECOM at WSMR. As of 30 June 1972, funds released for CHAPARRAL program were: RDT&E $60.093M, PEMA $310,536M.

VULCAN Air Defense System

(C) There were no VULCAN hardware contracts awarded in FY 72. The total requirement of 222 Towed Systems was completed in September 1971.

(C) The immediate goals of the GADES (Gun Air Defense Effectiveness Study) program were to provide a quantification of current VULCAN Air Defense System effectiveness, evaluate the need for system improvements, estimate the cost effectiveness and possible increase in system effectiveness associated with each potential system improvement, and to provide a basis for decisions concerning the future of Low Altitude Forward Area Air Defense System (LOFAADS) gun systems. The GADES program involved development of seven mathematical models to evaluate trade-offs in specified areas as follows: cost, reliability, engineering, fire unit effectiveness, fire unit vulnerability, fire unit ground role, and a systems effectiveness/cost effectiveness model. Models were to be validated by test. The Final GADES Report (last Phase II Milestone) was scheduled for 1 December 1973.

(C) Some 14 Product Improvement Proposals (PIP's) had been under consideration during FY 72. In April 1972, AMC approved and forwarded to DA the ROR Reliability PIP for final approval and release of funds. Also, in conjunction with this PIP, a letter was forwarded by AMCRD in June 1972 to permit release of funding for the Phase I (contractual) portion of the PIP. Three additional PIP's, Ammunition Stowage in SP Vehicles, Redesign of ROR Circuits, and Towed Carriage Hydraulic Cylinder, were likewise forwarded in April 1972. The remaining ten PIP's were to be updated prior to submission to the AMC Working Group and, additionally, to GADES for cost effectiveness evaluation. The ten PIP's currently under consideration were: ROR System Tester, DA/GS Shop Set, Test Bed for the ROR (M109), Equilibrators on Gun Mount, Circuit Boards on FCS, Fire Out Feed System in S/P, Potentiometers in Sight Current Generator, Muzzle Clamp for Gun,

Force Sensitive Hand Control, and Infrared Nighttime FCS. As of 30 June 1972, funds released for the VULCAN program were: RDT&E $28.943M, PEMA $139,935M.

Forward Area Alerting Radar (FAAR)

(C) Following the General Officer Review of the FAAR Program on 25 March 1971, the CG, AMC made the decision to proceed with production of the FAAR System; the contract was signed on 2 April 1972. A constraint was placed on the rate of production, the amount of materiel to be purchased, and the employment of personnel. The previously established production schedule of thirty-five systems to be delivered in the first six months was reduced to seventeen, with the satisfactory completion of additional testing required prior to authorization of full scale production. ET/ST of the System, being conducted with PPE units, was completed in September 1971, except for the maintenance evaluation phases. Several deficiencies were found, principally in the quality assurance area and in software.

(C) Maintenance evaluation phases of ET/ST and IPT were initiated in late December 1971, using the first two production radars accepted by the Government since the restart of production. Deficiencies found in ET/ST were corrected in those radars and validation of the correction was scheduled to take place during the conduct of IPT. Several additional deficiencies were detected, and the maintenance evaluation was not satisfactory, primarily due to inadequate manuals.

(C) In late March 1972, CDC initiated an Operational Test and Evaluation, to test doctrine and the usability of the FAAR System in the field by troops operating within the doctrine. Preliminary reports from CDC indicated that, while they agreed with TECOM that the FAAR and associated equipment essentially met the requirements of the Materiel Need, they had some reservations as to the utility of the TADDS, but a communication provided to DA on 25 July 1972 indicated that CDC now found the TADDS acceptable. OTE was expected to be completed by 31 Oct 72.

(C) At the close of FY 72, every effort was being expended, and successfully, to provide hardware with the deficiencies corrected to TECOM for validation of the correction, and to provide adequate manuals for completion of maintenance evaluation. In conjunction with the completion of OTE, and the completion of TECOM's validation of corrections to deficiencies, it was planned to hold an IPR at the earliest date practical, for the purpose of recommending Type Classification Standard A. The contractor was currently under contract for the delivery of 90 radars and associated equipment. A decision as to whether or not the full program of another 90 radars and associated equipment would be

procured, awaited the results of the IPR. The CG, AMC, had directed that if the decision was made to procure additional radars, it would be a competitive procurement.

(C) As of the end of June 1972, the contract required delivery of 33 radars. Against this requirement, 17 radars were actually delivered. Deliveries of both quantity and quality of hardware appeared to be improving, and it was anticipated that initial activation and deployment schedules could be met. As of 30 June 1972, funds released for the Program were: RDTE $8.734M, PEMA $49.001M.

Problems

CHAPARRAL System Effectiveness

(U) CHAPARRAL was type classified Std A with the understanding that action would continue to meet the system effectiveness requirements of the QMR. Program effort had been initiated to provide improvements in the guidance, fuze and warhead, which were expected to increase effectiveness to the QMR requirement. With Type Classification Std A of the System, the QMR was cancelled. A draft MN(PI) had been developed (then in process of being converted to the ROC format) which imposed certain additional requirements which would further increase the flexibility and effectiveness of the System. Further, DCP-95, approved in May 1972, required all of the changes stated in the draft MN(PI) (contemplated to be the ROC), but these changes had not as yet been funded.

VULCAN System Effectiveness

(U) The VULCAN System, type classified Std A, failed to meet the effectiveness requirements of the QMR, principally in the areas of accuracy and smooth tracking rate. Efforts to improve effectiveness were frustrated because of the inability of the Army to adequately define effectiveness, and from that definition, determine what the current actual effectiveness was and what effectiveness was really required. The GADES effort, described earlier, was designed to provide the Army with this evaluation capability, and also the capability to meaningfully evaluate the cost effectiveness of various possible modifications. USACDC (US Army Combat Developments Command) had stated an intention to develop an MN9PI) for the System which would include the requirements for improvement as determined by the GADES effort.

CHAPARRAL/VULCAN/FAAR Milestones Completed

System		Date
CHAPARRAL	Fire Units Delivery Completed	Jul 71
CHAPARRAL	FY 71 Missile Contract Awarded	Oct 71
CHAPARRAL	Product Improvement Program for MOD-1A GCG Approved	Dec 71
CHAPARRAL	MOD-1A Contract Awarded	Jun 72
CHAPARRAL	Engineering Services Contract Awarded	Jun 72
CHAPARRAL	Product Improvement Proposal for Smokeless Motor Submitted to DA	Jun 72
CHAPARRAL	Development Concept Paper for LOFAADS Approved by DA	Jun 72
VULCAN	FY 69 Production Delivery of 120 each Towed Systems Completed (GE-0403)	Oct 71
VULCAN	Request for Initiation of Action to CDC on MN(PI) for Improved VULCAN	Feb 72
VULCAN	Product Improvement Proposal (PIP) for Range-only Radar Reliability Improvement Submitted by AMC to DCSLOG for Approval	Apr 72
VULCAN	Production Validation for IPR for VULCAN ADS	Apr 72
VULCAN	VULCAN ADS (SP and Towed) formally Type Classified from LP(U) to Std A	May 72
VULCAN	Request for Release of Funds for Phase I ROR Reliability Improvement (PIP) to DCSLOG	Jun 72
VULCAN	Preliminary Coordinated Test Program for VULCAN Gunner Tracking Evaluator Forwarded to interested Agencies for comment	Jun 72

CHAPARRAL/VULCAN/FAAR Milestones Completed--(con.)

System		Date
FAAR	Service Test Completed*	Aug 71
FAAR	Engineering Test Completed*	Sep 71
FAAR	Delivery of 1st Production Radar	Nov 71
FAAR	Maintenance Evaluation started	Dec 71
FAAR	Initial Production Test begun	Jan 72
FAAR	Operation Test and Evaluation conducted by CDC started	Mar 72
FAAR	General Officer Review of Program	May 72

*With the exception of Maintenance Evaluation

CHAPTER VI

PROJECT MANAGEMENT: EQUIPMENT AND SUPPORT SYSTEMS

Surface Container Systems*

Introduction

(U) The Joint Logistics Review Board, authorized by the President, completed its findings in 1970. It was tasked to study the worldwide logistics support provided during the Vietnam war, 1965-1969. One recommendation was to fully exploit the advantages for container-oriented logistics systems (Army-Land/Water/Land and Air Force-Land/Air/Land). As a result of a MILVAN briefing 10 September 1970, GEN Chesarek, then the CG AMC, directed that a Product Manager be established at HQ AMC, as an interim measure pending establishment of a Project Manager with tri-service participation. AMC Message DTG 231819Z Sep 70 announced the establishment. The Product Manager was established 21 September 1970.[1]

(U) A charter approved by the CG AMC, 21 Oct 70, formalized the office and defined its scope of management responsibility for program execution and resource allocation.

Concept Mission

(U) The Project Manager would fulfill the system development requirements levied upon him by the Military Services and the Defense Supply Agency (DSA) to provide peacetime, contingency, and wartime capabilities to meet the needs for containers, container chassis, container and materials handling equipment, and administrative policies and procedures pertaining thereto, subject to the concurrence and approval of the Military Services and DSA. Using the mechanics of a jointly-staffed and coordinated Project Master Plan (PMP), the requirements of the Services/DSA would be fulfilled by the Project Manager with assistance, support, and funding as jointly approved and provided by the Services/DSA. The PMP would identify specific tasks to be accomplished, agencies responsible for accomplishment and target dates for completion. The PMP was to be dynamic in that it would be modified as additional requirements, tasks, resource availability, etc. were identified.[2]

---

1 AMC Message, DTG 231819Z.

2 (a) DEPSECDEF Memo of 8 May 1971, subject: Surface Container-Supported Distribution Systems Development. (b) Project Manager Charter, Surface Container-Supported Distribution Systems Development Project, of 25 Jun 71. (c) DOD Instruction 4500.37, "Ownership and Use of Containers for Surface Transportation," of 28 Jan 71.

*Based upon input from the Project Manager's Office.

(U) In order to insure that the attention and efforts of the Project Manager were being directed to the specific areas of consideration desired by the Logistic Systems Policy Committee (LSPA) and the DOD Container Steering Group and that timely progress was being made, a jointly-approved conceptual description of the DOD Surface Container-Supported Distribution System was made mandatory. This conceptual description described the point-to-point movement of containerized materiel in the logistics system in peacetime, contingency, and wartime situations. Detailed system descriptions would not be available until each service had developed specific container distribution concepts and doctrine to meet the logistic needs of its deployed forces. As progress was made, it was anticipated that additional specific requirements of an individual service would be identified as compatible with the needs of another. They would also become jointly approved tasks of the Project Mangers and added to the PMP. Thus, it was to be expected chat the PM's scope of responsibility would be enlarged.

Scope of the System Established

(U) Conditions of Operations: The system would operate around the clock in adverse weather and sea conditions, in developed, underdeveloped and limited facility environments to support deployment and resupply of forces in peacetime, contingency, and wartime situations.

(U) Modes: The containerized movement of materiel would begin as near the supply source of the logistic chain and end as near the ultimate user as is practicable. The modes of the system are as follows:

(U) Containers: Insofar as practicable, container equipment and services would be provided by commercial industry. Provisions would be made for a quantity of containers, if required, to be owned by the DOD. It was recognized that individual services would require and own service-peculiar special purpose containers. Examples included Navy underway replenishment, Marine Corps amphibious operations, Air Force Bare Base packages, and containers used for shelters, computer installations, mobile maintenance shops, etc. DOD or Service-owned containers would conform to, or be compatible with, standard container characteristics insofar as was practicable. Government-owned containers would be employed in peacetime operations to fulfill system development requirements and to meet needs of the services which could not be met by commercial industry.

(U) Means of Movement: CONUS movement of surface containers, including government-owned containers would be accomplished by commercial surface transport modes whenever such means were responsive to the needs of the Services. Movements to, from, and within overseas areas would be accomplished by either commercial or military surface transport modes depending upon availability, responsiveness, and

other factors. Surface transport modes include highway, rail, barge, ocean vessel, and rotary-wing aircraft. Surface containers should be air-transportable to permit emergency airlift to, from and within overseas areas.

(U) Equipment for Handling Containers and Lading: Industry developments in the field of containerization would be used by the Services whenever possible. Military design equipment would be developed only when commercial design or modification thereto will not meet the military requirements.

(U) Port/Terminal Facilities: CONUS ports used in container movement would be primarily commercial installations, with the exception that ammunition ports would be military installations configured for container operations. Military Ocean Terminals in CONUS would continue to handle breakbulk, Roll-on/Roll-off and multi-mission ships. Overseas port/terminal facilities in existence within the theater of operations should be capable of handling both containerized and breakbulk cargo.

(U) Origin/Destination Facilities: Government owned/controlled supply depots, centers, plants, etc., were to be capable of container operations. Adequate rail facilities, ramps, platforms, marshalling areas, and revetments would be required.

(U) Packing and Preservation: The protection afforded to the lading by a closed intermodal container provided the possibility for reduced packing and preservation and attendant economies currently unavailable in traditional transport means. It was recognized however, that the environment that containerized commodities would be subjected to at the end of the pipeline would be the principal controlling factor in determining levels of pack.

(U) Storage: It was recognized that containers were a means for providing temporary and mobile storage.

(U) Management of the System: A surface container-supported distribution system in which movement began as near the supply source in the logistic chain and ended as near the ultimate user as was practicable, required a fully integrated supply and transportation system. Future MILSTRIP/MILSTAMP procedures would provide data for intransit visibility as necessary to manage the system.

PM System Development Highlights

(U) The current trend of increasing containerized and decreasing breakbulk sealift capability was expected to continue. It therefore became necessary to develop methods of assuring cargo delivery under adverse conditions without availability of conventional port facilities.

The hardware and software to be included in the distribution system would be based on the requirements developed by the Services/DSA. The Project Manager was to: Develop items of equipment which had joint or common application to the stated requirements of the Services/DSA; monitor development of service-unique container equipment to determine possible application to the stated requirements of another component and prevent duplication of development effort; insure that equipment developed was compatible with commercial and military transportation systems in being or under development; and develop system control and operating procedures.

(U) The international commercial container industry was recognized as the leading force in standardization efforts, technologically advanced in both hardware and software, and as the prime source of container distribution equipment for peacetime, contingency, and wartime distribution systems. The Project Manager was to maintain current knowledge of developments therein. A free flow of information between the PM, Services, DOD Agencies and industry was essential.

(U) Doctrine and policy developed by the respective Services and DOD Agencies would be recognized and considered in the development effort. Trends in traffic volume, patterns, and shipping availability as determined by the DOD single managers and the Services were also vital factors in the development of a surface container-supported distribution system.

(U) Services/Agencies having primary interest and/or expertise in particular task areas would be assigned responsibility for developmental efforts in specific task areas. Support and funding assistance was to be provided in such efforts by other Services/Agencies prior agreements.[3] The PMP was to establish ways and means for accomplishing these task assignments.

(U) Test and evaluation of projects were conducted on a unilateral or joint service basis. The nature and scope of the test and evaluation effort was announced, and interested Service/Agencies were invited to participate. The degree of participation, funding arrangements, and reporting requirements now were as jointly agreed upon by the Services/Agencies having an interest therein.

(U) A system of reporting was established that kept the DOD PM fully apprised of progress of container system development efforts on-going by the individual services/agencies. The PM rendered periodic reports of progress in all areas of system development to the DOD Container Steering Group, the Services, DSA, and the Single Managers for Transportation Service, as appropriate.

---

[3] Army/Navy/Air Force Agreement on Management of Joint Systems/Projects, 28 March 1968.

Authorities and Responsibilities

(U) The Table of Distribution and Allowance was approved on 13 January 1971 by the CG, USAMC. The DOD Charter for the Project Manager, Surface Container Supported Distribution Systems Development was approved by the Departments of Army, Navy and Air Force on 25 June 1971. The Table of Distribution and Allowances (TDA) was revised to provide for the inclusion of Navy, Air Force and DSA personnel.

Designation of Project Manager

(U) The Department of the Army was designated as the Executive Service for the Surface Container-Supported Distribution Systems Development Project. COL Raymond A. Cramer, Jr., US Army, was designated as the Department of Defense Project Manager effective 25 June 1971. The Project Manager reported to the Commanding General, US Army Materiel Command. He was to be assisted and supported by assigned and/or detailed Army, Navy, Marine Corps, Air Force and Defense Supply Agency designees to develop a coordinated container-supported distribution system within the DOD. The Navy provided a military officer to serve as the Deputy Project Manager.

(U) The Project Manager was to develop standard equipment, policies and procedures that could be used by the Military Services and DSA to exploit the full potential of surface container-supported distribution systems. He was responsible for: planning, directing, and controlling of resources authorized for the execution of approved projects; achieving the technical performance objective of the project on schedule at the lowest possible cost; satisfying, and reporting status of, specific development and support requirements stated by the participating Services/Agencies; coordinating with Interface Agencies and for providing proper interfaces with other supply and distribution systems as required. The project Manager was also responsible, except as otherwise directed, for the execution of the project in conformity with the plan including implementation by organizations responsible for complementary, assigned project tasks; and for developing, testing, and obtaining approval of hardware, software, procedures and concepts relating to all aspects of container-supported distribution systems.

(U) The Project Manager was also responsible for preparing a Project Master Plan (PMP) that detailed requirements, plans, schedules, costs, source of funds and scope of all work. Development responsibility for unique and/or peculiar Military Service container-supported distribution systems applications (e.g., US Navy underway replenishment operations) will be retained by the proponent Service unless assignment to the Project Manager is arranged by supplemental agreement. The Project Manager will be cognizant of the status of such proponent

Service development projects. Resources and funds allocated to the project, regardless of Service source, shall be managed and controlled by the Project Manager in accordance with applicable regulations relating to the financial administration of funds.

Contractor Performance Measurement

(U) The Project Manager was specifically responsible for establishing and maintaining a system for contractor performance measurement in the areas of cost and schedule. As part of his management of the project, he would monitor and analyze the variances between the planned value of work accomplished and the planned value of work scheduled and the actual costs. As the result of his analysis in contractor performance, the Project Manager would identify potential or incipient problem areas and develop and define alternatives, and, depending upon the authority threshold, he would take or recommend actions to overcome the problems with minimum adverse effect upon the program.[4]

Significant Milestones

New Equipment Training Team

(U) The New Equipment Training Team conducted training sessions on the West Coast for initiation of MILVAN service from the West Coast to Mid-Pacific Islands (Johnston, Wake, Canton, and Kwajalein). Extensive training was conducted in Germany during June 72 for initiation of the Containerized Ammunition Distribution System (CADS) into Europe.

Concept Papers

(U) A Conceptual Description of the DOD Surface Container Supported Distribution System and the Approach of the DOD Project Manager for Surface Container-Supported Distribution Systems

---

4 (a) DOD Directive 5010.14, System/Project Management, 4 May 1965. (b) DOD Directive 4100.35, Development of Integrated Logistics Support for Systems and Equipment, 19 June 1964. (c) DOD Directive 5126.43, DOD Logistics System Planning, 26 March 1970. (d) Containerization, Monograph 7, the Joint Logistics Review Board, undated. (e) AMCR 11-16, Volume I, Project Management Concepts and Policies, February 1966. (f) Army/Navy/Air Force Agreement on Management of Joint Systems/Project, 28 March 1968. (g) Memorandum from Deputy Assistant Secretary of the Army (I&L), 31 August 1970, with inclosures. (h) AR 70-17, Systems Project Management, 19 January 1968. (i) DODI 4500.37, 28 January 1971, Ownership and Use of Containers for Surface Transportation. (j) Deputy Secretary of Defense memorandum May 8, 1971, subject: Surface Container-Supported Distribution Systems Development.

Development was completed in April 1972. This conceptual description was approved by the LSPC Steering Group for DOD Container-Supported Distribution Systems Development and forwarded to the Services for appropriate action in May 1972.

Study Completion

(U) The Office of the Project Manager completed a study titled "A Surface Container-Supported Distribution System" in May 1972. This study examined the many problems involved in using containers and containerships as a means of distributing supplies to the US Army Forces and developed recommendations for resolution of problems as required. The study may serve as a model to guide future Army surface-containerization efforts.

Project Master Plan (DRAFT)

(U) In accordance with the provisions of the DOD charter for Surface Container-Supported Distribution Systems, a Project Master Plan (DRAFT) was completed and forwarded to the Services for comment/concurrence on 12 April 1972. The plan outlines the requirements, plans, schedules, sources of funds and scope of all work to be provided by each participating Service/Agency in the development of a container-supported distribution system.

Maintenance Support Plan

(U) The final Maintenance Support Plan for the MILVAN System was completed, published and distributed to the field.

MILVAN Chassis Landing Leg Retrofit

(U) Engineering tests were conducted and accepted on landing leg retrofit kits which will alleviate deficiencies reported from the field. The kit provides low ground pressure sand shoes, stronger lateral and longitudinal braces and new locking pins. "Caution" and "Warning" plates alert the prime mover operator to the appropriate safeguards to be taken during coupling which could result in injury to personnel and/or damage to MILVAN chassis and cargo. 250 initial production kits have been installed on chassis in overseas areas.

Development of Lightweight Spreader Bar

(U) A contract was awarded for the development and fabrication of a lightweight spreader bar. This equipment will facilitate container handling with a helicopter and increase the useable lift capability of the aircraft by its reduced weight.

Type Classification MILVAN

(U) Documentation for type classification Standard A was initiated for the MILVAN container and Standard B for the MILVAN chassis.

Air Transportability of MILVAN Container

(U) Ultimate strength tests of the MILVAN container were conducted with the results that the roof, ends, side walls and restraint system all exceeded the strength stipulated in the military specification. It has been demonstrated that the MILVAN container is air transportable in the C13, C141, C5A type aircraft under restricted operating conditions.

Extended Test of MILVAN Chassis

(U) A 30,000 mile extended test which included performance and endurance testing of the MILVAN chassis was completed. The item successfully met all prescribed tests, indicating that with properly trained operators, the MILVAN chassis can complete its mission with a minimum of downtime.

Loan of MILVANs

(U) During FY 72,a total of 1085 MILVANs were on loan or special assignments as follows:

Loans to Dept of Navy	427
Loans to Army	160
OSDOC II	310
Air Force Special Shipments	8
Authorized for use by MSC for MID-PAC Service	180
TOTAL	1085

Production

(U) Contract DAAK01-70-7679 was awarded 30 June 1971 to Fab Weld Corporation, Simpson, Pennsylvania, for 2000 each Container, Cargo (MILVAN). On the same date, modification P001 added the Small Business and Labor Surplus Set-a-Side quantity of 4700 MILVANs for a total contract quantity of 6700 units. On 31 December 1971, a change was incorporated for a built-in mechanical cargo restraining system (Mechanical Dunnage System) in a total of 4500 units. This built-in restraining system provided for each MILVAN to contain a compliment of 25 restraining bars along with the built-in restraints. The balance of 2200 MILVANs are of the general cargo type. Production of the restrained MILVANs was completed in June 72. In May 72, Fab Weld started production on the general cargo van. A total of 5010 had been completed by 30 June 72.

Spreader Bar Procurement

(U) Spreader bars for loading and unloading MILVANs were purchased during FY 72 for use by the Department of the Navy, the Off-Shore Discharge of Containers (OSDOC II) Test, ports in Thailand, ammunition plants, and the containerized shipments of ammunition to Europe. A total of 20 spreader bars were purchased from the PRC Division of Midland Ross Corporation and the Roberton Schwartz Company.

MILVAN Chassis

(U) Experience with the MILVAN chassis revealed problems with the commercial design under conditions encountered by the Army-in-the-field. TACOM was charged with initiation of necessary modifications to the chassis landing legs to improve its operational characteristics. A fix to the landing legs has been devised to add strength and durability to the chassis. The fix includes stronger leg braces and longer locking pins. Prototypes of the fix (3 sets) were fabricated and were thoroughly tested before final acceptance. The fix is now being applied to all of the chassis planned for use overseas.

Forecast

(U) The Project Master Plan was to be completed as required by the DOD Charter. It would outline requirements, plans, schedules, sources of funds and scope of all work and resources to be provided by each participating Service or Agency. Full-scale containerization of Army cargo, expected in the years ahead to link up with the growing fleet of containerships, was to be given a boost toward reality in OSDOC II (Off-Shore Discharge of Containers) tests in October 1972.

(U) A Joint Army/Navy exercise at Fort Story, Virginia, OSDOC II would examine equipment and procedures for discharging containers from containerships, and moving them across beaches in logistics over-the-shore (LOTS) operations. Results would help the Army define a system applicable to the short-range future (1973-77) by determining what facilities were needed in an over-the-shore environment and how these should be further developed.

(U) Efforts were to be made to finalize and initiate new container documentation. This would insure adequate DOD surface container cargo and movement visibility within the Military Standard Transportation and Movement Procedures (MILSTAMP) system.

Mobile Electric Power*

Introduction

(U) The Office of the Project Manager - Mobile Electric Power (PM-MEP) was activated 1 July 1967 by direction of the Secretary of Defense. The Secretary of the Army was designated Executive Agent for DOD for FSC 6115, engine generators, and was directed to appoint a project manager and to negotiate and issue a jointly approved charter. The mission of the Project Manager, as outlined in the charter, was to effect management and standardization of Mobile Electric Power Generating Sources within DOD to meet military needs. Consistent with this mission, two priority tasks were assigned.

(U) The development of fully coordinated standardization documents and procurement data packages which could be used to procure the first DOD standard family of generator sets acceptable to the Services was the first concern. Figure 4 identifies the family by kw rating.[5]

(U) The determination of the operational requirements for and definition of a DOD Standard Family of gas turbine engine driven generator sets and/or other power sources was the second priority. This was referred to as the second generation of the DOD family.

(U) Figure 5 indicates the organization of PM-MEP as of 30 June 1972, with an authorized strength of 60, and an actual strength of 56 personnel.

Program

Transition Plan

(U) A Project Transition Plan, providing for a phasing down of certain activities, was developed. The plan called for time phased reductions during FY 73 and FY 74.

Charter Revision

(U) The PM-MEP charter was reviewed and revised by the Project Manager and submitted to DA for approval. The Secretary of the Army approved the charter on 12 May 1972. A significant change in the charter limited the DOD Standard Family by designating the 750 kw set as the largest member of the family. In addition, the Service Representatives were no longer in the Project Manager's staff but were to act in an advisory capacity to the PM-MEP on matters relating to their respective Service and would serve as focal points for the PM to facilitate implementation of the MEP program.

---

[5] DOD Directive 4120.11 "Mobile Electric Power."

*Based upon input from the Project Manager's Office.

DoD STANDARD FAMILY RATINGS
OF
MOBILE ELECTRIC POWER SOURCES

RATING KW	60 Hz	400 Hz	DC
0.5	X	X	X
1.5	X		X
3	X	X	X
5	X	X	
10	X	X	X
15	X	X	
30	X	X	
60	X	X	
100	X	X	
150	X		
200	X		
500	X		
750	X		

NOTE: All 60Hz sets, 15kw and larger, have a 50Hz capability derated to 5/6 of the 60Hz rating

Figure 4

UNCLASSIFIED

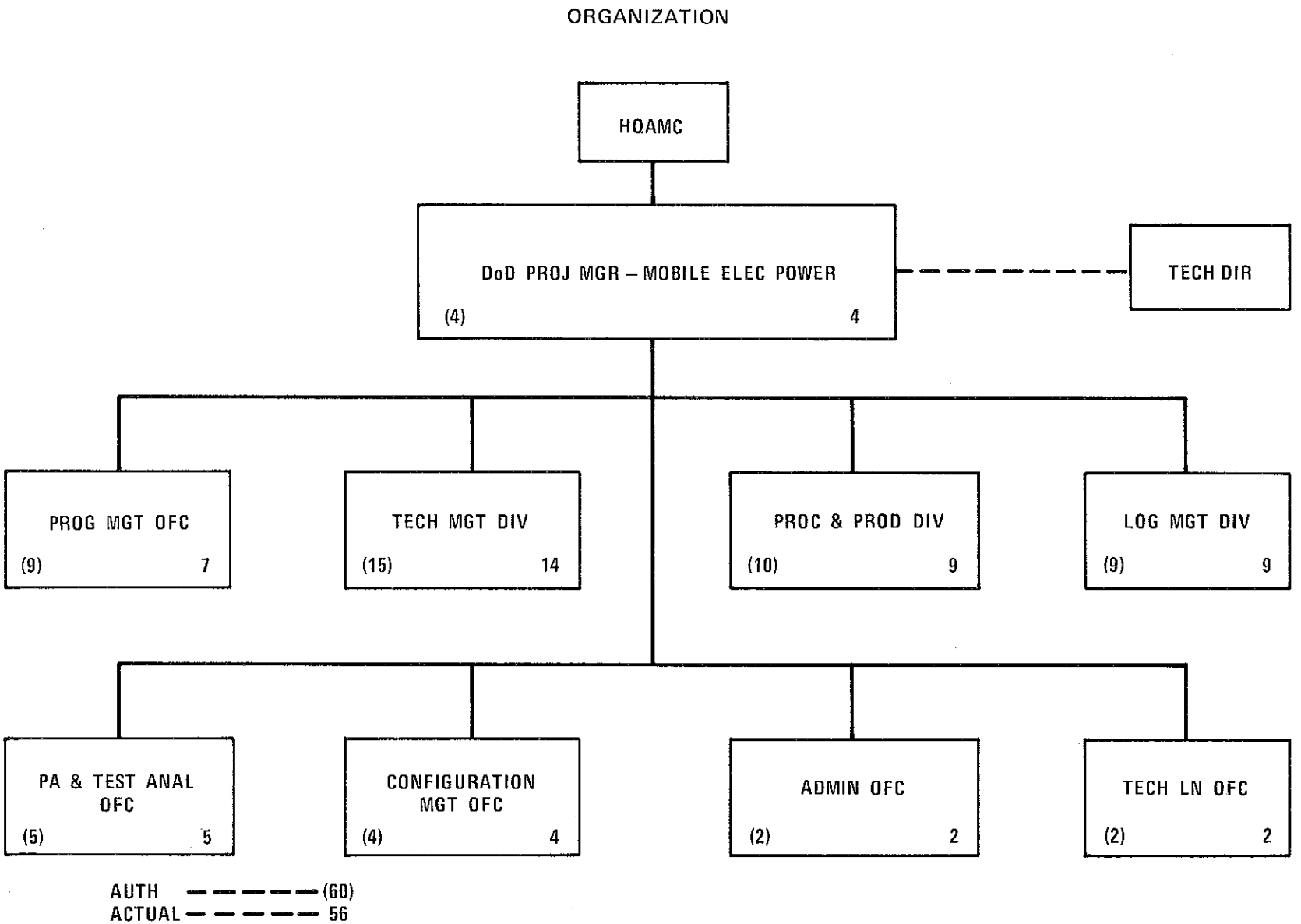

ORGANIZATION
HQAMC
DoD PROJ MGR – MOBILE ELEC POWER
(4) 4
TECH DIR
PROG MGT OFC
(9) 7
TECH MGT DIV
(15) 14
PROC & PROD DIV
(10) 9
LOG MGT DIV
(9) 9
PA & TEST ANAL OFC
(5) 5
CONFIGURATION MGT OFC
(4) 4
ADMIN OFC
(2) 2
TECH LN OFC
(2) 2
AUTH (60)
ACTUAL 56

Figure 5

Cost Analysis

(U) Beginning in FY 71, the 10 kw Turbo-Alternator generator program was reported quarterly as part of the Project's PROMIS Report. The original development contract was for $4,550,000, however, as a result of engineering changes, back-up programs and integrated logistics requirements, the current estimate was that the completed contract would cost $5,600,000. The scheduled variance would result in approximately a one-year extension of the contract. The contractor's Cost and Performance reports and the bi-monthly Technical Progress reports continued to be critically reviewed.

(U) A report, "Comparative Life Cycle Cost Analysis-10 kw Turbo-Alternator"completed 28 Jan 72, indicated the life cycle cost per hour for the 10 kw Turbo-Alternator was less than comparably sized generators using gasoline engines. The 10 kw turbo alternator cost was higher than comparably sized generators using a diesel engine. However, for tactical use, including air transportability, the higher cost appears justified. Further analysis would be made as test performance data are available.

(U) A report, "Comparative Life Cycle Cost Analysis," made 10 Nov 71 indicated that the diesel engine set offered substantial savings over the present gasoline engine sets. This analysis was part of the PM-MEP program for DOD standard diesel engine generator sets.

Training

(U) During FY 72, 17 personnel attended courses at government installations. Courses ranged from 1 to 6 weeks including the Defense Management Systems, Monterey, California; Army Integrated Materiel Systems, Fort Lee, Va." Life Cycle Cost Analysis, Fort Lee, Va.; and Logistics Management, Wright-Patterson AFB, Ohio. In addition, 11 personnel attended courses at university night schools and outside installations, including Brookings Institution.

Program Requirements

(U) In FY 72 the MEP generator programs were:

Army	$11.0 million
Navy/MC	$ 9.2 million
AF	$10.7 million
Total	$30.9 million

Deviations from DOD Standard Family

(U) During FY 72, there were 17 requests for deviation from the DOD Standard Family of generators received by the Project; 12 were approved and 5 were disapproved.

Product Assurance Test Analysis

(U) Reliability/Maintainability Reliability/Life demonstration was commenced on the 60 kw DOD Diesel Engine Generator sets. This was the consummation phase of the precedent setting acquisition program for mobile electric power sources utilizing the R&M disciplines. There were to be follow-on actions in the operations and disposal phase, but there were not as uniquely different from previous acquisitions without application of the R&M disciplines as those actions related to the acquisition process prior to full scale production.

Reliability Records

(U) Reliability status for the family of gasoline engine driven military design generator sets, 0.5 - 10 kw, and the 10 kw turbo-alternator was being assessed periodically under the guidance of the Project Manager. This status was based upon the results of the test portion of the Reliability Improvement of Selected Equipment (RISE) program, Initial Production Tests (IPT), and Development Tests.

(U) Two DC versions of the 10 kw turbo-alternator were furnished to the Federal Republic of Germany for their test and evaluation in various applications.

(U) An R&D Summary in consonance with our Joint Operating Procedures and the efforts of the Joint Panel for R&D was completed. This summary provided management visibility as to those programs within DOD which will ultimately impact upon the DOD Family of generators. Using this summary, the Joint Panel will make recommendations covering program consolidation, guidance, and funding levels which will provide maximum benefit to the Government.

Other Programs

(U) An Environmental Control Summary was evolved to determine the status of pollution control programs and regulations which will directly affect existing and future MEPGS. Other R&D efforts included coordination with NATO and ABCA in order to standardize the development of MEP sources for the field. An Oil Analysis program was started to determine the practicality of extending oil change intervals for the engines in MEPGS. R&D support during this year has included close liaison with the SAM-D Project in the Army, and Bare Base Project in the Air Force, both of which are potentially heavy users of generators in the future.

Procurement & Production

Five-Year Procurement Plan

(U) The FY 72 Five-Year Procurement Plan covering FY 72 to FY 76 requirements was published 1 July 1971 and was subsequently updated 1 January 1972.

Procurement of DOD Standard Family Sets

(U) Contracts were placed for the DOD Standard Family of diesel engine-driven generator sets with one exception. Contracts for 60, 100 and 200 kw sets were awarded during FY 70. A companion procurement for 15/30 kw sets, which had been delayed for more than a year by protests and litigation, was awarded in February 1972. A procurement document was prepared for a 150 kw standard family member; however, action is presently suspended pending a determination regarding the economic feasibility of adding this size to the family.

(U) Procurement of production sets of small diesel family members, 5 and 10 kw, was currently underway. The solicitation was issued during May 1972 and the award of a one-year requirements type contract was anticipated during the first quarter of FY 73. This procurement was assigned to Sacramento Air Materiel Area, McClellan AFB, California.

Contract Surveillance

(U) Close surveillance of progress was maintained on the contracts for DOD Standard Family sets involving 22 generator set line items per month. Status information was also maintained on the non-DOD Standard Family procurements for mobile electric power generator sources involving an additional 21 line items per month. Intensive management of the Standard Family sets resulted in refinements of production progress reporting, more effective surveillance by DCAS production specialists, and improvement of contractor production plans and milestone reports used in Government surveillance of progress.

Contract Awards

(U) Total dollar value of contract awards for mobile electric power requirements during FY 72 exceeded $35 million.

Publication of Long Range Procurement Estimates

(U) Long Range Procurement Estimates for mobile electric power requirements for FY 72 to FY 72 were published in the Commerce Business Daily in February 1972.

245-082 O - 77 - 13

Industrial Mobilization Production Planning

(U) MEP Implementation Guidelines for Industrial Mobilization Production planning for mobile electric power generator sets were updated and distributed to the Services. PM-MEP representatives met with Defense General Supply Center personnel to provide guidance in the completion of Industrial Mobilization DD Form 1519 series to comply with the MEP guidelines. Meetings were also held with HQ, DSA, DCAS and DGSA personnel to resolve problems with ASPPOs/contractors regarding Industrial Mobilization Production planning agreements for DOD Standard mobile electric power generators. PM-MEP representatives met with MECOM representatives to provide guidance and assistance in the Army's Industrial Mobilization production planning program.

Logistics Management

Provisioning

(U) In accordance with the Joint Operating Procedures, initial provisioning actions on the 60, 100 and 200 kw D D standard family generator contracts continued. The first joint Service provisioning conference (60 kw at Fermont) was held 8 Sep through 1 Oct 1971. Provisioning representatives from the Services, utilizing the recently approved joint Source, Maintenance and Recoverability codes, identified the parts required to be stocked in the DOD supply system for support of this DOD standard family generator set. Preprovisioning guidance conference on the 15-30 kw contract was accomplished during March 1972.

(U) Joint Service coordination of the total data package required for the 5-10 DED IFB and for the 150 kw DOD standard family generator procurement package was accomplished during January 1972. This package incorporated current data items and was based on lessons learned in monitoring the DOD standard family generator set contracts (15-30 Libby; 60 KW Fermont; 100-200 kw Condec).

Preservation and Packaging

(U) A standardization project was established by the PM-MEP and assigned to Navy for the preparation of a Military specification for the packaging of Mobile Electric Power Generator Sets. This specification covered the requirements for the preservation, packaging, packing and marking of Mobile Electric Power Engine Generator Sets for shipment and storage. Coordination by all Military Departments had been accomplished and the specification was mandatory for use by all Departments and Agencies of the Department of Defense. All contractual documents initiated during FY 1972 incorporated this joint specification. The preservation and packaging requirements were standardized among the Military Services thus providing industry with identical Government requirements from contract to contract.

Parts Support

(U) Considerable effort had been expended in FY 72 to establish guidelines to the Services for the removal from the supply system of parts applicable to non-standard generators, thereby promoting the overall reduction of the number of parts to be procured, stocked and managed in the DOD system in support of generators. In addition, the Project has spearheaded the "one item--one manager" concept for the management of items, parts, components, and assemblies that support the DOD standard generators.

Integrated Logistics (ILS)

(U) A comprehensive ILS program was established for the development of the 10 kw Turbo Alternator to achieve maximum visibility of the reliability, maintainability and logistical requirements during the engineering design and development phases by providing for an orderly and effective planning of future support requirements. The ILS program would provide the basis upon which decisions and trade-offs could be based for reliability, maintainability, logistical support and the cost to achieve the optimum balance, the total cost, schedule and operational effectiveness.

Monitorship of the Maintenance Generators

(U) 15/30 kw DOD Contract. The post award and preprovisioning guidance conference was conducted at Libby Welding Co. during February and March 1972. PM-MEP personnel participated in the Technical Manual outline review conference and reviewed the contractor submitted manual validation plan.

(U) 60 kw DOD Contract. The first draft of the 60kw manuals was reviewed by the services, comments submitted and a conference monitored by PM-MEP maintainace personnel was held to reconcile the differences. The preparation of a definitive maintenance test package listing was directed. This listing was reviewed and appropriate corrections were requested. Validation/Verification of the 60 kw Technical Publications was conducted at contractor's plant during April 1972.

(U) 150 kw Generator Set and 5 and 10 kw DED Generator Sets. A new document for the preparation of multi-Service technical manuals was developed for the procurement package for 5 and 10 kw Diesel Engine Driven Generator Sets and for a 150 kw generator set. Input for the other maintenance aspects of these procurements was also developed.

Joint Operating Procedures

(U) Two joint operating procedures were published in March 1972. Change 8, Chapter 4, Sections 4 and 5. One procedure established a

uniform criteria and set of principles for the application of economical repair expenditure limits for MEPGS. The second procedure established and defined a program for Maintenance Standards for MEPGS covering the repair, overhaul and rebuild functions in all Services. In addition, a proposed JOP on Depot Maintenance was revised in consonance with comments received on a previous coordination and resubmitted to the Service representatives for further coordination.

(U) The Asset Reporting JOP was rewritten and submitted to the Services for coordination and publication. A world-wide asset report that consolidates all of the Services' generator assets will provide the Project a useful management tool to guide the research, development, engineering maintenance, programming and supply control efforts toward the Project's standardization goal, and to assist in analyzing the Project's accomplishment and management effectiveness.

Large Generator Program

(U) PM-MEP continued close surveillance on the large generator (500 kw and larger) pool being accumulated from Vietnam retrograde by the Chief of Engineers. In conjunction with this program, coordination was effected with AMC and Chief of Engineers to assure that adequate low voltage (60 kw, 100 kw, 200 kw) generators were included in the operational project to support base development during early stages of emergency deployments in the future.

Interservice Use of Assets

(U) Continued progress was made in FY 72 toward minimizing the expenditure of new procurement dollars for non-standard generators. Maximum use was made in redistributing one Service's available on-hand non-standard generators to satisfy another Service's immediate needs. The requiring Service's funds were used to buy back DOD standard generators. This practice promoted the standardization goal of procurement of only the DOD standard family by affording maximum utilization of non-standard generators and avoiding procurement of non-standard generators until the DOD standards became available.

US Army Satellite Communications Agency

SATCOM *

Background

(U) The US Army Satellite Communications (SATCOM) Agency, as Army Project Manager for satellite communications, was made responsible for providing the ground environment for the Department of Defense Satellite Communications System. The SATCOM Project Manager also acted as the Army's agent for all international military satellite communications systems such as UK "Skynet" and the NATO system, and represented the Army in special a DOD non-communications satellite projects. In addition, the SATCOM PM exercised complete life cycle management and support for the tri-service military satellite communications ground environment.

(U) The Agency acted as an integrated facility performing satellite communications system engineering, research and development, testing and evaluation, and support functions for the DA under HQ, AMC. From its headquarters at Fort Monmouth, NJ, the Agency also directed the operations of a CONARC field unit while in garrison at Lakehurst (NJ) Naval Air Station. This unit and the training area were used in testing and demonstrating tactical satellite communications equipment.

Annual Historical Summary -- 1 Jul 71 - 30 Jun 72

(U) Major advances in Phase II of the Defense Satellite Communications Program and in the development of small tactical satellite communications terminals marked Fiscal Year 1972 at the Army Satellite Communications Agency.

Strategic Systems

(U) The first of the new terminals, the Heavy Transportable (HT) AN/MSC-60, for the second phase of the Defense Satellite Communications system were to be completed in 1972. This terminal had redundant critical components with automatic fault location and automatic switchover to increase operational availability and to permit reduction of operator skill levels. Steps were taken in the design to minimize the effects of electromagnetic pulse interference. The AN/MSC-60 was scheduled for its reliability test of 1250 hours in September 1972 and it was scheduled to go into operational use thereafter.

(U) The fabrication of the Medium Transportable (MT) terminals, the AN/MSC-61, was 80% complete and was scheduled to undergo environmental

*Based upon input from the Project Manager's Office.

tests at the Eglin Air Force Base chambers early in FY 73. The AN/MSC-61 was electrically the same as the AN/MSC-60 with the exception of the transmitter and the antenna. The AN/MSC-60 contained two three kw and one 8 kw transmitter and a 60 ft. parabola antenna while the AN/MSC-61 utilized an 18-foot antenna with two three kw transmitters.

(U) The technical specifications and contract negotiations were completed for a contract to be awarded for the construction of two terminals at Fort Detrick, MD, to provide a satellite trunk to replace the existing "Hot Line" between Washington, DC and Moscow, USSR. This program, called the Direct Communications Link (DCL), would utilize Molniya II satellites on the West-to-East Link and Intelstat IV on the East-to-West Link. Final technical details were still being clarified by additional meetings between the two countries based on the original agreements which resulted from discussions at the early SALT talks.

(U) Testing was underway at Philco-Ford on the acceptance of 15 Contingency Communication Subsystems, 8 Nodal Communication Subsystems and 7 Non-Nodal Communication Subsystems. These subsystems were the modulation portion of a satellite earth terminal and would interface with users of conventional military systems, either directly or through a Defense Communication System Technical Facility in the second phase of the Defense Satellite Communications System.

(U) The contract of approximately 5.6 million dollars called for the Contingency subsystem to interface with the AN/TSC-54 and provide 12 voice channels or 11 voice and 16 teletype. The interface was at 70 megahertz. The nodal system provided the necessary modem and multiplex equipment to support up to 7 satellite communications links simultaneously to non-nodal terminals through a single satellite repeater. The maximum total voice channels that a nodal would handle was 72. The non-nodal subsystem consisted of a kit for the modification and upgrading of the Armadillo multiplex shelter and Operation Control Van portion of the AN/MSC-46 earth terminal. The non-nodal system provided a 12-channel voice capability expandable to 24 channels.

(U) Specifications were prepared and a contract was being negotiated for the fabrication of 6 Engineering Development models of the AN/USC-28, an advanced spread spectrum modulation-demodulation communication equipment for use in the earth terminals for increased anti-jamming protection with the DSCS second phase high power satellites. The anticipated contract would be sole source to Magnavox Research Laboratories. These EDM models were to be functionally configured as either Control and Synchronization Master (CSM) or a Control and Synchronization Slave (CSS) with up to 15 Communication Receiver/Transmitters being added as applique units. The CSM would be capable of broadcasting time reference and frequency corrections to the CSS

terminals; broadcasting and receiving an anti-jam TTY Critical Control Circuit (CCC); and providing time and frequency corrections for up to 15 collocated Communications Receiver/Transmitter units and collocated Time Division Multiple Access (TDMA) equipment. The CSS would monitor the CSM broadcast transmission to extract the CCC and time and frequency information, slave its reference clock to that of the CSM, provide the appropriate time and frequency corrected signals to up to 15 collocated Communication Receiver/Transmitters (Comm R/T's) and collocated TDMA equipment. The Comm R/T was an applique unit that would be added to either a CSM or CSS. It could provide either a full duplex, Link Order Wire (LOW) as the only mode or a LOW plus a digital data channel. The LOW operated at 75 bps and the digital data channel could operate from 75 bps to 5 mbps uncoded and 75 bps to 2.5 mbps when an external coder/decoder was utilized.

(U) A wide band secure circuit, code name Muscle Trunk, was established utilizing satellite communications for operational traffic between Washington, DC and Hawaii. The trunk interconnected the 758C secure switch in the Pentagon and the AN/FTC-31 switch located at Pearl Harbor. This circuit allowed subscribers in the Washington area to call on a wide band secure circuit and other subscribers located in Hawaii. The trunk provided two secure and two clear voice channels. The data rate was 225 Kbits with an error rate of 10^{-5}. The Muscle Trunk circuit was recently extended from Hawaii to Vietnam, on an operational basis. This allowed operational wide band secure traffic from Hawaii to Vietnam and the Pentagon to Vietnam.

(U) An advance development model of a hard or soft decision maximum likelihood decoder was developed for use in the Defense Satellite Communications System. The decoder would operate to 2 Mbits with E/No of 5.5 at an error rate of 10^{-5}. Based on the performance of this advance developmental model, specifications were written and a solicitation was made for the development of Engineering Development Models of a 2 Mbits and a 7 Mbits maximum likelihood decoder. A contract was expected with Linkabit Corp., San Diego, California.

(U) A contract was awarded to Radiation, Inc., Melbourne, Florida, for the development of Phase Shift Keying (PSK) Modem and an Interconnect Facility (ICF) Modem. These modems would operate at any data rate up to 10 MB/s and would interface with the decoders. These modems would be utilized in Stage 1B and 1C of the second phase of the DSCS to transmit digital traffic.

(U) General Atronics, a division of Magnavox was awarded a contract to develop analog to digital (A/D) and digital to analog (D/A) converters. These converters would be capable of detecting whether analog or digital information was being transmitted over the line.

If it was analog, then the A/D converters would digitize the analog data into 50 KB/s. These data would then be multiplexed and transmitted over the satellite link. On the receiving end, the digital traffic would be converted to analog by the D/A converters. These equipments would be used with Muscle Trunk circuits.

(U) Radiation Incorporated was awarded a contract for the development of an experimental model solid state terminal. This terminal would utilize microwave integrated components (MIC) to obtain up converters, down converters, filters, intermediate RF amplifiers, frequency synthesizers, and low noise receivers. This equipment would be small in size and low in power consumption. Initial tests were to be made with the terminal equipment driving a phase array. The subsystem could be used with an antenna with filter changes. In support of the DSCS Phase II Program, the SATCOM Agency undertook the procurement of equipment and the development of software for monitoring and controlling communications links over Phase II satellites.

(U) The first of a series of Spectrum Analyzers was delivered in December 1971 and instructions for its use as a manual system monitor were developed and tested. In May 1972, the manual analyzer with monitoring and computational procedures was deployed to Hawaii to support DCA Pacific personnel in monitoring Satellite 9431. The first DSCS Automated Satellite Spectrum Monitor was delivered in November 1971. Software for satellite monitoring processes and system power computations was developed and in June, an operational system was deployed to Hawaii. Written procedures covering terminal operation, monitor facility operation, computational procedures, and other documentation were prepared for DCA and included in Draft DCA Circular 831-70 which was published in May 1972. Satellite Evaluation Network (SEN) test procedures for Stage 1a and the test plan for Stage 1b were completed. An extensive Stage 1a test program was conducted on Phase II DSCS Satellites 9431 and 9432 utilizing AN/TSC-54, AN/MSC-46, and AN/FSC-9 terminals located at Fort Monmouth, NJ; Fort Dix, NJ; Brandywine, MD; Fort Huachuca, AZ; and Helemano, HI. Satellite and terminal characterization information obtained during this test program would permit more efficient utilization of satellite and terminal capabilities.

(U) Communications system tests were performed on the Interim Contingency Communications Subsystem (ICCS) over a Phase II Satellite link between Brandywine, Maryland and Fort Huachuca, Arizona. The ICCS upgraded the AN/TSC-54 to provide a twelve voice channel capability and was designed and fabricated in-house to meet the initial launch of the Phase II satellites. All logistics and provisioning items, spare parts, technical manuals and programs of instruction for these equipments were prepared in-house.

(U) Under a contract to Hughes Aircraft Company, a Group Delay Test Set was designed and developed. It provided a means of measuring group delay at 70MHz and 700 MHz IF to satisfy Phase II test requirements. Measurements were successfully conducted on a Phase II satellite.

(U) Communications Support for USAF SCF was provided by designing and constructing in-house modifications to provide certain AN/MSC-46 link terminals with the capability to simultaneously transmit two RF carriers and the AN/FSC-9 at Camp Roberts with two additional down converters for their reception. Called Project SHAG, each modified AN/MSC-46 was to provide one carrier in the Earth Coverage to Earth Coverage satellite band and a second carrier in either the same band or the Earth Coverage to Narrow Beam band. This configuration would permit the modified terminals to continue their normally-scheduled communication activity at the same time the accommodation is provided to the special users. In order to minimize the impact on logistics support and training, maximum use was made of parts and circuits identical to those used in the original link terminal. The Agency participated in site surveys in Lago De Patria and Bagnoli near Naples, Italy to prepare for a US Navy satellite communications link.

(U) Technical assistance was provided to US Army Strategic Communications Command in the relocation of an AN/MSC-46 Satellite Communications Earth Terminal from Wildwood, Alaska to Taegu, Korea. Technical assistance was supplied by in-house engineers and technicians to the tri-service operated terminals for the Defense Communications Satellite System.

Tactical Systems

(U) The two Army AN/TSC-80 shelter mounted TACSAT terminals were modified to permit operation with the Phase II satellites in the NC-NC mode in a multichannel configuration. The modification consisted of a frequency conversion of the transmitting and receiving subsystems which provided four frequencies of operation in addition to NC Beacon Signal reception. The common modem and its accessories were removed, and a Pulse Code Modulation (PCM) 12 channel multiplexer, TD-660, a 12 channel echo suppressor and a 12 channel ring converter, CV-1548, were installed in its place. These items were interfaced with the DPSK modems which were procured with the Army's AN/TSC-80. The Differential Pulse Shift Key (DPSK) modem was converted from 6 channel (288 Kbit) to 12 channel (576 Kbit) operation. The modified terminals were operationally tested with Phase II Satellite 9432 in June 1972.

(U) In response to a request by AFSCF, the tactical terminal AN/TRR-30 alert receiver was modified to provide a 24 hr/day monitor for Phase II Satellites 9431 and 9432. The modification consisted of the design and installation of a mixer oscillator to permit reception of the Phase II Satellite Beacon signals and the addition of a second tunnel diode amplifier to improve the receiver sensitivity by decreasing its effective noise temperature. The modified receivers were tested and demonstrated at the SATCOM Agency and then delivered to Camp Parks, CA to serve as around-the-clock monitor terminals.

(U) Specifications and procurement documents were prepared and technical bid evaluation completed to select a contractor for the second generation Tactical Satellite Communication ground terminals. These engineering development models will consist of four ¼ ton, three 1¼ ton and 2½ ton terminals. The 2½ ton terminals are the so-called Light Terminals (LT) for the DSCS.

(U) Under the code word Dutch Oven, the Agency prepared specifications and procurement documents for man transportable specially packaged terminals. Proposal evaluations were completed and a contractor was to be selected for these 4 terminals which provided for a special user. Award was expected during the first quarter of FY 73.

(U) The Agency developed a Minimum Usable Satellite (MUSAT) terminal and applique unit to be used with the UHF 1¼ ton and ¼ ton vehicular mounted terminals. A test program was conducted at various locations at low and high look angles to determine the capabilities and limitations of this terminal. The UHF Airborne Terminal (AN/ARC-146) was reconfigured and palletized, providing an additional terminal asset of flexible configuration for the 235th Signal Detachment.

(U) Tactical ground terminals designed in conjunction with the other services or developed by the Army were used under varied environmental conditions and in simulated tactical situations. During fiscal year 1972, the following major exercises have received TACSATCOM Support.

Exercise	Dates
ALOUD LIMA	4 - 19 Dec 71
Presidential Support/ Azores	2 - 15 Dec 71
ACE CARD IV	3 - 13 Mar 72
ACE BAND POLAR CAP II	18 - 31 Mar 72
GALLANT HAND 72	23 - 31 Mar 72
ALOUD MIKE	8 - 14 Apr 72

Exercise	Dates
CONARC Demo	24 - 26 Apr 72
CSPR III	11 - 12 May 72
EXOTIC DANCER	13 - 25 May 72
GOLDEN STEP 72	12 - 26 Jun 72

Navigation System

(U) As coproponents, the USA Combat Developments Command Intelligence Agency, acting for USACDC, and USASATCOMA, acting for USAMC, prepared the "Draft Proposed Materiel Need for Army User Equipment for use with the Defense Navigation Satellite System (DPMN-AUE/DNSS)" and the "Draft Proposed Materiel Need Technical Plan for Army User Equipment for the Defense Navigation Satellite System (DPMNTP-AUE/DNSS)." The DPMN-AUE/DNSS established requirements for three basic applications: manpack, land and sea vehicles, and airborne. There were requirements for four special applications: Field Artillery and Engineering Survey, Geodetic, SIGINT, and Target Acquisition.

(U) SAMSO/USAF established at the White Sands Missile Range, a navigation satellite simulation facility to verify the theoretical performance of several of the System 621B concepts. This facility placed the satellite transmitters on the ground in a geometric configuration typical of proposed space system. The aircraft looks "down" at the signal source instead of "up" as would be the condition with satellites. SAMSO/USAF has been testing four-channel receivers in high-dynamic aircraft. AFAL contracted for a test of single-channel receivers integrated with inertial platforms in high-dynamic receivers. As a logical extension of these tests, USASATCOMA arranged for a contract with TRW, Inc. to design hardware and test the single-channel receivers alone and with low-cost self-container positioning systems in low-dynamic aircraft.

(U) Because DNSS had the potential of meeting the positioning, navigation, survey and velocity data for so many diverse applications, agreements were reached between USASATCOMA and several developer organizations to provide technical support to Army Project Manager for DNSS. The USA Engineering Topographic Laboratories were to provide support for the application of DNSS to survey requirements; the USAECOM Electronic Warfare Laboratory for SIGINT applications; the USAECOM Combat Surveillance and Target Acquisition Laboratory for applications to STANO; the USAECOM Avionics Laboratory for airborne applications and hybrid systems; USAMUCOM and USAWECOM, through Frankford Arsenal, for the application to fire control systems; and USAECOM PM/NAVCON for the integration of DNSS into the common Army Positioning and Navigation Systems (PANS).

Conclusion

(U) As the Agency for engineering satellite communications ground terminals and related systems, SATCOM constantly advanced the design of terminals for use in strategic and tactical military networks. New concepts and techniques were being evolved through an intensive program of research and development towards the goal of reliable communications for the Armed Forces of the United States wherever deployed.

US Army Communications Systems Agency

STARCOM *

Introduction

(U) The US Army Communications Systems Agency (USACSA)/Project Manager STARCOM, a joint US Army Materiel Command (USAMC) and US Army Strategic Communications Command (USASTRATCOM) project management Agency, was activated at Fort Monmouth, NJ on 1 March 1967.[6] The Commanding General, USASTRATCOM, on behalf of USAMC and USASTRATCOM organized the Agency as a USASTRATCOM command and by mutual agreement of the two commands, the Commanding Officer, USACSA, was assigned as the USAMC Project Manager for Strategic Army Communications (STARCOM) projects.[7] The US Army Communications Systems Agency was organized for the centralized management of Defense Communications Systems (DCS) and STARCOM projects and tasks, as assigned.[8] Specifically, the primary functions were to accomplish the technical and business management of engineering, procurement, production, distribution, and follow-on logistic and maintenance support for assigned projects. Research and development projects, as assigned, are also managed by USACSA.[9]

---

6 TAG ltr to CG USAMC and CG USASTRATCOM 15 Feb 67, subj: Establishment of a joint USAMC/USASTRATCOM Project Management Agency.

7 HQ USAMC and HQ USASTRATCOM, 28 Feb 67, subj: Charter.

8 (U) DA mst DA-CCE Feb 67 to DCA, subj: Army Plans for Management of the AUTODIN Program.

9 (U) DA msg DA-CCE Feb 67 to DCA, subj: Army Plans for Management of the AUTODIN Program.

*Based upon input from the Project Manager's Office.

(U) USACSA's specific mission, as contained in the organization charter, was to manage the development and acquisition (research, engineering, procurement, production, distribution, installation, and integrated logistical support) of projects assigned by the Commanding Generals, USAMC and USASTRATCOM.[10]

Command

(U) Former USACSA Commanders are as follows: COL Blaine O. Vogt (March 1967 - July 1967); MG Hugh F. Foster, Jr. (July 1967 - July 1969); COL William D. Canfield (August 1969 - July 1970); and BG Richard W. Swenson (August 1970 - July 1971).

(U) On 6 July 1971, BG Dorward W. Ogden, Jr., 134-16-3768, was designated Project Manager STARCOM [11] and Commanding General, USACSA.[12]

The Uniqueness of STARCOM

(U) The USACSA - STARCOM Project, when compared with the general concept of a project-managed weapon or communications system, had several functional and operational aspects that were both distinct and complex. The USACSA-STARCOM Project was substantially different from the conventional approach to project management in that there was no single end item which could be identified as the final objective, toward which the total work effort of the Agency was directed.

(U) The intensified management responsibilities assigned to the USACSA-STARCOM Project include long-range, worldwide communications which the Army acquired for the ultimate operation jointly by the Army, Navy, and Air Force under the direction of the Defense Communications Agency (DCA). The USACSA-STARCOM Project also managed tasks and projects that related to purely Army requirements, to requirements for other US military departments and non-military US Government Agencies, as well as requirements for allied armies and governments.

(U) A wide range and variety of individual communications-electronics equipments and material were also procured by the USACSA-STARCOM Project. The Project Manager was responsible for the procurement and follow-on logistical support for over 3800 distinct PEMA items unique to strategic communications. Representative of these equipments were antennas, transmitters, receivers, multiplexers, switchboards, and teletype equipments, as well as other ancillary items used in long-line, point-to-point fixed installation application.

10
Ltr HQ, USAMC and HQ, USASTRATCOM, 28 Feb 67, sub; Charter, p.2.

11
USAMC msg 131757Z Jul 71, subj: Designation of Proj Mgr, Strategic Army Communications (STARCOM).

12
GO No. 9 HQ USACSA, Ft. Monmouth, NJ, dtd 6 Jul 71

(U) Also, within the Project Manager's procurement and logistical support purview there were communication systems being engineered and installed under contract with industry such as the Integrated Joint Communication System-Pacific and the European Wideband Communications System Selected Link Improvements for FY 68, FY 69, and FY 70. The communications systems projects, which required a major portion of the Agency's work efforts, included a global complex of inter/intra-country and continental microwave, cable, and tropospheric scatter facilities. Commercially developed equipments packaged in transportable configuration such as the Communications-Central AN/TSC-38 were also procured and managed by the Project Manager.

(U) Military Assistance Project (MAP) projects such as the Indonesian Communications System (INDOCOM), Spanish Army Territorial Command Network (TCN), Imperial Iranian Gendarmerie Communications System (IIGCS), and the Foresight Sierra Communications System for the Republic of the Philippines were also under the procurement cognizance of the STARCOM Project Manager. An average of 100 active contracts with a value in excess of $400 million were managed by the Project Manager in FY 72.

(U) Project Management responsibility for all stretegic army communication research and development (R&D), including the Army portion of the DCS, was assigned to the USACSA-Project STARCOM commander. Among the R&D programs for engineering development in support of DCS (Army) were the Pulse Code Modulation Multiplexer TD-968()/4, the Megabit Digital Tropo Subsystem, and the Centralized Automatic Message Entry and Addressal System. During FY 72, active programs for advanced and engineering development for strategic communications included Advanced Speech Compression, Micro Miniaturized Test Equipment, High Speed Message Entry Equipment, High Speed Page Printer Distributor/Transmitter and the Intra Headquarters Message Distribution System.

(U) There were two unusual conditions which complicated and restricted the Project Manager's technical and managerial efforts in the operation of the USACSA-STARCOM Project. The Project Manager did not determine the requirements for the STARCOM Procurement Equipment Missiles-Army (PEMA) systems and equipments. These requirements were established by USASTRATCOM, the DA Assistant Chief of Staff Communications-Electronics (ACSC-E), Defense Communications Agency (DCA), Joint Chiefs of Staff (JCS), Air Force, Navy, State Department, the White House, and others.

(U) Generally, although the STARCOM Project Manager had been assigned R&D projects and tasks, he did not unilaterally effect

major redirection of the technical approach on these R&D projects. This responsibility was shared with the Defense Director of Research and Engineering (DDR&E), DCA, ACSC-E, Office of the Chief, Research and Development (OCRD), and others.

(U) Other factors that had a pronounced influence on the Agency's method of doing business are certain characteristics inherent in STARCOM projects. Indicative of these definite restrictive influences are the following: The acquisition of strategic communications systems was funded by PEMA money and was to satisfy immediate operational requirements. There was no R&D cycle for the strategic communications systems that were procured by this Agency; the systems equipment configurations were not standard and differed in each major strategic communications system assigned to the STARCOM Project for intensified management. These configurations were comprised of commercial equipment manufactured to meet a specific performance characteristic which led to a proliferation of equipment in the field and the establishment of a broad logistical support base with all its attendant problems. The STARCOM cycle began with the acquisition phase which resulted in a compressed management operation.

(U) The STARCOM management cycle began at a point corresponding to the production and delivery phase in a normal life cycle. This meant that the time for logistical support planning in the STARCOM cycle began with contract award. This was in contrast with the normal cycle where support planning was done before the production contract was awarded. In the STARCOM cycle, equipment production was complete at the same time that provisioning and software actions were underway. In most cases, the equipment was installed and operating before the support actions were completed. This resulted in the interim use of contractor assistance in the form of operation and maintenance services, commercial manuals and parts lists, and spare parts kits.

(U) All Defense Communications Agency (DCA) tasks that were subsequently assigned to USACSA Project STARCOM were channeled through the Department of the Army and USASTRATCOM to the Agency. The tasking of non-DCS projects was initiated at the Department of the Army level and directed through USASTRATCOM to the STARCOM Project Manager. As previously noted, the Project Manager executed the Agency mission assignments with the full-line authority of the Commanding General, USAMC, and the Commanding General, USASTRATCOM. USACSA - Project STARCOM, had a direct relationship with USAMC and USASTRATCOM, and also with elements that the Agency interfaced and/or coordinated with, in the conduct of business.

Organizational Structure and Personnel Status

(U) At the close of business on 30 June 1972, the USACSA-Project STARCOM organization was structured as outlined in Figure 6.

(U) The six Deputy Project Managers (DPM) provided intensified management for selected systems and projects. Their offices were staffed with communications management specialists and support personnel commensurate with the requirements of the individual projects. Each DPM had an ADPM organization. The DPM's at Fort Monmouth had an ADPM located at Fort Huachuca and the DPM at Fort Huachuca had an ADPM located at Fort Monmouth.

(U) The functional directorates, in addition to their regular assignments, provided specific support to the Deputy Project Manager, as required. The Agency had sufficient organizational flexibility to permit ready establishment or discontinuance of a Deputy Project Manager's office as the situation dictated. Consequently, as an intensified managed project achieved a stable condition it no longer required a concentration of specialized skills. The particular Deputy Project Manager's personnel and function should be absorbed by the Agency's directorates. Conversely, an additional Deputy Project Manager's office would be organized as required and the Agency's directorates would furnish the personnel resources to staff the new office.

(U) During FY 72, the Engineering Directorate at USACSA was abolished and the engineering functions previously assigned to it were accomplished by the Communications-Electronics Engineering Installation Agency (CEEIA) at Fort Huachuca. The Research and Development Management and Configuration management responsibilities originally assigned the former Engineering Directorate were re-established as individual activities at USACSA.

(U) at the start of business on 1 July 1972, the combined authorized and assigned military and civilian personnel strength of the USACSA-STARCOM Project was as follows:

USACSA AUTHORIZED PERSONNEL SPACES

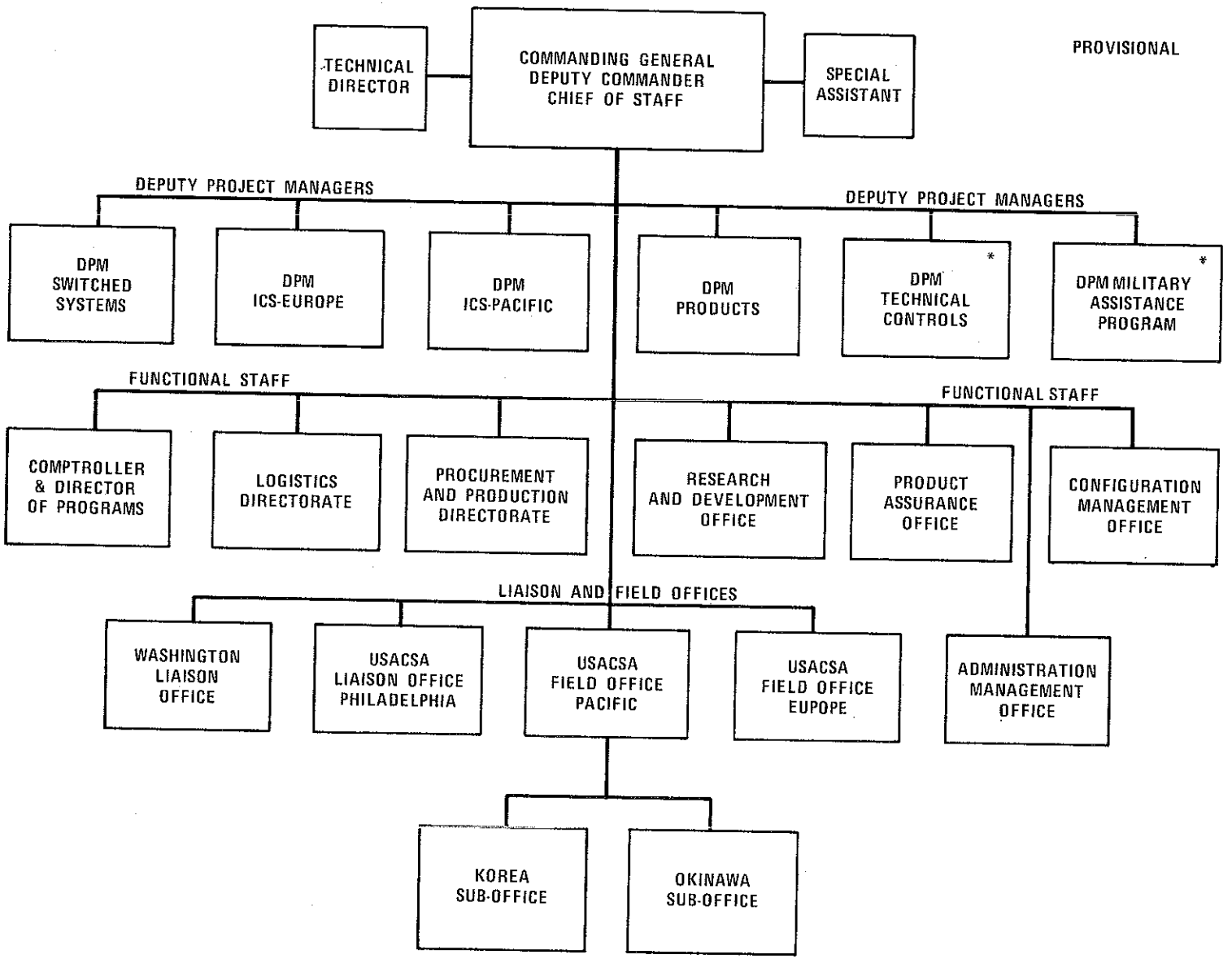
	Officers	Enlisted	Civilian*	Total
USAMC	14	7	128	149
USASTRATCOM	29	42	96	167
TOTAL	43	49	224	316

*Overhire authority for 23 civilians not included.

245-082 O - 77 - 14

U.S. ARMY COMMUNICATIONS SYSTEMS AGENCY

PROVISIONAL



*LOCATED AT HQ, USASTRATCOM, FT HUACHUCA

1 MARCH 1972

Figure 6

USACSA ACTUAL PERSONNEL STRENGTH

	Officers	Enlisted	Civilian*	Total
USAMC	11	7	119	137
USASTRATCOM	25	43	74	142
TOTAL	36	50	193	279

(U) There were over 120 active tasks in the USACSA task inventory, of which 40 were major systems and projects assigned to the Project Manager as of the close of business on 30 June 1972. The individual systems and projects were indicative of the broad experience and expertise required of the USACSA-Project STARCOM personnel to successfully fulfill the Agency's mission.

USACSA Management Accomplishments

(U) FY 72 was a successful year for USACSA in accomplishing its mission of acquisition, installation, and logistical support of strategic communications systems. During the year, the organization was restructured for more effective operation and management. Centralization of functional responsibility was strengthened to insure better control in the areas of programming, financial management, task assignment, logistics configuration management, cost analysis, procurement, and quality control. The most significant aspect of the reorganization was the establishment at Fort Huachuca of Deputy Project Manager (DPM) offices for the Worldwide Technical Controls and the Military Assistance Programs (MAP) together with Assistant Deputy Project Manager Offices (ADPM) for DPMs located at Fort Monmouth. The following will highlight accomplishments in the various areas of project management.

Increased obligation of OPA funds

(U) The prime resource of USACSA-Project STARCOM was the Other Procurement-Army Program and during FY 72, the program, including Army and customers, totaled $120 million. The obligation objective was to award 50% or more during the fiscal year. The objective was low because of the difficulty in defining the program for procurement purposes, and because many decisions were required from higher authorities. Past experience indicated that 50% obligation goal was reasonable. A change in procedure by Department of Army (DA) resulted in an increase in the obligation rate. Program dollars not obligated by 30 June 1972 were returned to DA causing a lower base and, therefore, a higher rate of obligation. It was expected that a final obligation rate of 75-80% would be achieved.

*Overhire authority for 23 civilians not included.

Mechanization of PEMA Program status

(U) During FY 72, control of the 4,000 or more procurement requests was improved by mechanizing the PEMA Program Status Report by computer. Manual reports, previously prepared monthly, were now prepared weekly by computer. Statistical summaries provided management data and listings for review purposes. Also, periodic listings were prepared in special formats for forwarding to procurement offices and depots for follow-up purposes. This effort has helped clear up many smaller type commitments held in a carry-over status and has made program funds available to meet other requirements.

Centralized management control of RDT&E program

(U) Progress was made in centralizing management control over the RDT&E program. The Comptroller's office acted as the focal point for all RDT&E budget requirements and worked closely with the R&D Technical Management Division of USACSA, and with the various USAECOM activities involved in USACSA's RDT&E program. This action resulted in a closer working relationship, in better justifications for re-requirements in the budget, and in higher obligations of program dollars.

Developing cost estimates for communications systems

(U) During FY 72, Cost Analysis personnel made outstanding progress toward establishing and improving the Cost Analysis capability within the USACSA. The following significant achievements were made: Life-cycle cost summaries were developed on the Korea Wideband Network, the European Wideband Communications System - 70, the Integrated Joint Communications System - Pacific, and cost estimates to engineer, furnish, and install were completed on the Spanish TCN and on Project Scope Picture (J-7) Phase III. These estimates were a joint effort with USACEEIA. The cost estimate for Project Tango was reviewed and and some changes were recommended.

Cost analysis handbook

(U) The Cost Analysis Handbook was completed and distributed. Included in the handbook were chapters on Learning Curves, Cost Estimating Relationships, Cost Factors, Sensitivity and Uncertainty Analysis, and a Cost Model. It became a best seller and a much needed management tool. As additional information of value was received, updates of the handbook would be made.

(U) Cost factors were developed for various cost elements such as management, engineering and installation, packing, packaging and

transportation, initial provisioning, tools and test equipment, and documentation. These were developed as a result of previous contractor experience with similar types of systems. The TCN cost estimate was used by GEN Ogden and USACEEIA representatives to brief the JUSMAG in Spain and the Spanish Army's action officers. The J-7 estimate was accepted by the DA Staff and is being used as a guide for obtaining appropriations for the J-7 system.

Improvement of USACSA Management Information System

(U) During FY 72, the expansion of the Management Information System (MIS) was accomplished to meet the increased requirements for data to manage and control more than 100 individual tasks currently in the USACSA inventory. Centralized control of tasks received high priority in the Agency. USACSA Regulation 715-4 was implemented, placing control of tasks received in the Comptroller's Office. Newly assigned or add-on tasks, when received, are submitted with recommendations to the Command Group who designates assignment in writing. All activities were notified of the assignment. Periodically, a USACSA task inventory was published, listing by activity the task, primary tasking document, project type (I, II, or III) and Action Officer. The 3,000 or more procurement directives were controlled and monitored by the PEMA Program Status Report mentioned earlier.

(U) Using the inventory of tasks as a base, a pre-award control had been established which provided visibility over the preparation of procurement packages. The pre-award report listed all procurement packages being prepared in-house and those already in the procurement cycle at USAECOM. Follow-up was made every two weeks. Analysis included the number of months procurement packages had been in progress. Reports were submitted to the Command Group with recommendations for corrective action.

(U) Included in the task inventory were 30 to 40 major projects requiring constant visibility. Start and completion dates were forecast on over 20 standard milestones. These were monitored on a monthly basis and reports were submitted to the command group. Slippages and trouble areas were highlighted and explanations of slippages were given. A control was also maintained on quick-reaction projects forwarded to the depots with a value of $10,000 or more. Milestones were monitored and slippages explained.

(U) Another portion of the MIS was the Active Contract Listing. This report listed all the active contracts in the Agency and provided the contract identification, dollar value, delivery dates of the major equipment, contract completion date, and geographical location for equipment use. The report was prepared in various formats

and serves as a ready reference for USACSA, STRATCOM, and DA. Management type data was prepared from this report indicating the number and dollar value of contracts, whether it was competitive or sole source, and whether the type of contract was cost plus or fixed price. This report was made available to the Commanding General on a bi-weekly basis.

Internal review

(U) Significant achievements were made in Internal Review. The Mission Support Agreement between USACSA and USAECOM, addressing the functional relationships between the two commands was developed and negotiated during the period of August 1970 through November 1971, and was signed on 5 November 1971. A Pre-Award Procurement Package review was currently being conducted by the Internal Review Office. This assignment was a follow-up to one conducted during FY 70. The purpose of this review was to surface the delays encountered in preparing procurement packages within the USACSA or from external sources and to recommend corrective action.

Type classification of strategic communications systems equipment

(U) A significant accomplishment in the type classification program during FY 72 was the standard B type classification of the ETA Maintenance Control Group AN/GSA099(V) and 24 equipments in the AUTOSEVOCOM system. An important step in the classification process involved the researching of catalog data for the purpose of identifying each item. Using this data as a base, decisions were made to initiate procurement directives or requisitions. In the past, this review was conducted by manually utilizing catalog data which occupied 15 cubic feet of storage space. By acquiring a microfilm reader-printer and a series of microfilms of the Army Master Data File and the Nomenclature file, catalog space was reduced more than 50 percent and the screening time was cut in half.

Establishing visibility of logistics support tasks

(U) Improvements were made in obtaining visibility into the number and types of logistics support tasks that the USAECOM National Maintenance Point and the National Inventory Control Point performs for USACSA-managed projects. To better monitor these programs, USACSA instituted monthly status review conferences, developed an overall task listing, and assigned a required completion date and a work priority designator to each task. These actions have resulted in a better assessment of current workload accomplishment, ready identification of problem areas, and positive identification and analysis of the causes.

Special tools & gauges

(U) A review of Communications Systems requirements for special tools and gauges has resulted in cancellation of procurements because they were found to be common type items. Through the application of Value Engineering and the removal of gold-plating, savings in excess of $500,000 were realized. In some instances, subsequent procurement costs were reduced 84%. Internal operating procedures have been revised to insure against repeat performances.

Disposal of CONUS Depot Stock

(U) To improve the excess and disposal of CONUS Depot Stock, a standard short form supply control study format was designed and put in operation. A total of 1,200 items were studied to determine the asset position. The study revealed that 337 items were in a partial or total excess position. The studies were approved by USASTRATCOM and action has been taken to dispose of the stock estimated to be worth approximately $2 million. Action to further reduce CONUS depot inventories of obsolete items was to continue.

Equipment and maintenance performance data

(U) A sample Data Collection Program was implemented to compile equipment maintenance and performance data for possible identification of problem areas. The data was collected at unit levels and transmitted directly to the USAMC Logistics Data Center and Lexington, Kentucky for data processing into a specific format. Under the modified Army Maintenance Management System (TAMMS), USACSA nominated 16 equipments for sample data collection. The DSTE was included in this group. In addition, 59 Army Terminal sites were identified as participants in the DSTE Sample Data Collection Program. This data was to be analyzed by USACSA and problem areas were to be resolved.

Freight Cargo Movement Handbook

(U) A transportation plan was prepared and distributed for use as initial planning guidance for each major communications system. A Freight/Cargo Movement Handbook was prepared and published for USACSA use as interim direction and guidance on shipment planning and movement procedures. On the IIGCS, based upon the urgency for early arrival of the GE transceivers, the contract provisions and shipment planning instructions were constructed to automatically provide priority management control on a routine basis rather than individually initiated transportation management actions on each shipment.

Quality Assurance Review Procedure

(U) During FY 72, a review procedure was established to insure that the reliability and maintainability requirements for newly assigned major projects were satisfactory. Currently, every major project assigned to USACSA is reviewed to insure that quality assurance requirements are met. On the IIGCS project, because the initial equipment was rejected by the Iranian government, it was important that a high probability of superior quality be assured. An organized review of the contractor's quality control program, production methods, and test procedures was conducted. As a result, the standard contractor quality control program was modified to better assure high quality control. Added features of the modified program include an audit inspection to be conducted as a sample of each lot of radios packed and ready for shipment and the assignment of a quality engineer to coordinate the total quality control effort. Two additional inspectors were assigned to perform a complete visual and mechanical inspection of each unit after the functional test. Functional test data was recorded for each unit and a copy attached to each unit shipped.

Cost Reduction

(U) During FY 72, a USACSA Resources Conservation (Cost Reduction) Award was established to provide recognition for those persons who have made a significant contribution to the program in the form of validated savings. Criteria includes initiative, imagination, ingenuity, and cost savings. Two individuals received the award during FY 72 for their contributions in FY 71. Actual savings of $338,000 were reported against a goal of $200,000. During FY 72, the goal of $200,000 management type savings and $2 million value engineering savings had been executed. Cost savings during FY 72 exceeded $3 million.

Management Advisory Council

(U) A forum was provided for middle management engineering and administrative personnel to voice their opinions and express their ideas concerning the management of USACSA. A Management Advisory Council (MAC) was established by the Commanding General to serve this purpose. Its membership is composed of a regular and associate member appointed by each DPM, Director, or Office Chief to serve for a period of 6 months. Many of their suggestions have been approved and adopted by the Commanding General.

Value Engineering

(U) Value Engineering (VE) management and administration was being applied to 18 contracts with a total dollar value of $178 million. All

18 contracts contained the VE incentive clause and all contracts awarded by USACSA were coordinated with the USACSA VE coordinator for suitability of a VE effort as required by ASPR-1-1701. In-house Value Engineering Proposals were processed through the Cost Reduction program coordinator. Savings of $2.7 million were realized against a goal of $2 million. This was the fifth straight year in which savings exceeded the goal.

Binary Addressable, Scan-Converter Storage Tube

(U) The binary addressable digitizer matrix assembly, a key component of development effort, was designed and fabricated by the contractor, Westinghouse Electric Corp., verifying the feasibility of the basic design approach. The assembly was composed of silicone wafers, each array of 512 x 512 holes assembled to form the digitizer matrix stack. This development was applicable to many technical areas concerned with large viewing area displays. The development of sophisticated techniques utilizing lasers for drilling over 250,000 holes in a square area within a 2-inch diameter circle was reported by the contractor. In evaluating various potential techniques, it was concluded that the preferential etching technique is not feasible.

Design and Fabrication of Flat Panel Electroluminescent - Film Display Device

(U) Luminescent film model matrix address integrated circuits were designed and fabricated by the contractor, Westinghouse Electric Corporation. These circuits were fully compatible with the electroluminescent display face. The previously achieved R&D internal effort by the contractor was contributing significantly to the success of the basic development. Techniques have been developed for utilizing thin-film transistor (TFT) address and drive circuitry, which was vacuum evaporated directly on the electroluminescent display surface. This circuitry provided short-term element memory and alleviates the necessity of many wire interconnections to the address, drive, and memory circuitry. The contractor had been depositing 1 x 1-inch arrays of TFTs at a density of 100 per inch.

Information Display Devices for Use with Teletype Systems

(U) This project was basically a product improvement effort and involved the development of an Electronics Information Display System to replace the existing Teleprinter Project Set (TT2-622/FG). The development was to utilize solid state techniques and light emitting diodes (LEDS). The design of the breadboard display was completed and ready for testing. In evaluating various available LEDs, Motorola was selected as the contractor for the optimum LED capable of satisfying the requirements to provide means for holding some 17,000 diodes. The first completed model of the Electronic Information Display was scheduled for delivery prior to 30 October 1972.

KPCM Multiplexer - TD-968( )/U

(U) This equipment, a rugged, lightweight, compact unit, capable of converting 3, 6, 12 or 24 four-wire, voice-frequency channels to a time division multiplexed pulse code modulated signal was for use in the Defense Satellite Communications System (DSCS) Phase II. It would also demultiplex and demodulate a TDM-PCM signal into analog voice frequency signals. A contract for the fabrication of an advanced development model and 10 engineering development models (EDMs) was awarded. The advanced development model was accepted by the government in December 1971. Delivery of the 10 EDMs was scheduled for December 1972. An option for an advanced production engineering (APE) package was exercised in February 1972. Delivery of the APE package was scheduled for June 1973.

Acquisition of strategic communications systems

(U) During FY 72, Deputy Project Managers continued to acquire and install new communications systems worldwide and to expand and modify existing systems. The following accomplishments occurred during FY 72.

Overseas AUTOVON Interface-Europe

(U) This system electrically interfaces US and foreign manufactured telephone central office equipment and individual 4-wire subscriber lines into Overseas AUTOVON Switching Center. The current configuration required AUTOVON interface at 12 additional PBXs in Europe. A contract for 6 PBXs in Europe was awarded, equipment delivery was scheduled for December 1972, and installation was to start in December 1972 with scheduled completion date for May 1973. The contractor's proposal to interface three more PBX sites in Germany was received by the Contracting Officer. Pricing was completed in April 1972. Contract was awarded in June 1972.

(U) Site 300 was a complete communications facility to support consolidation of intelligence activities in the European area, and posed a variety of tasks as follows: A contract was awarded in November 1970 for the Internal Secure Telephone System. The equipment arrived on site in July 1971, installation started during the same month, and was completed in October 1971. The Initial Operating Capability was achieved in October 1971. The six 4-wire AUTOVON subscriber terminals at Site 300 were completed. The AUTOSEVOCOM terminal equipment was shipped in November 1970. A turnover agreement was forwarded to USASA-E in January 1972 and was signed in January 1972. All miscellaneous Class IV installation materials, teletypewriter equipment, and tools and test equipment were on hand in Europe.

CONUS AUTOVON Niod

(U) This consisted of the installation of equipment at 17 US Army Posts, Camps,and Stations to interface the Dial Central Offices into

the CONUS AUTOVON System, and to provide contractual services for installation, test, and acceptance of government-furnished property (GPF) provided through Class IV projects. Under a contract awarded in December 1970, implementation was completed in October 1971.

Relocation of AN/FTC-31/SEVAC (Stuttgart, Germany)

(U) During January 1971, DCA proposed relocation of the AN/FTC-31/SEVAC from CONUS to Germany to support the operational requirement of USACINCEUR. Subsequently, the JCS approved the proposed plan. Installation started in July 1971 and was completed in October 1971. Contractor O&M started in October 1971 and was completed in January 1972.

Dial Central Office (DC) Upgrade-Panama

(U) This required that work be performed at eight DCOs in Panama, CZ, to accomplish separation and upgrade of the AUTOVON incoming switch train and transmission upgrade of AUTOVON trunks. Overall engineering and determination of equipment was accomplished by the government. The contractor would be required to accomplish detailed engineering, installation, test and cutover of a combination of contractor-furnished and government-furnished equipment. Technical proposals were received from industry on 8 February 1972. The proposals were evaluated at Fort Huachuca, Arizona, during the period 10 - 16 February 1972 and the results provided to the contracting officer on 24 February 1972. Contract award was completed in June 1972.

DSSCS AUTODIN Terminal Program

(U) This program would provide AUTODIN compatible terminals for selected subscribers of the worldwide intelligence community. The Implementation and Installation Plan (IIP) was completed in February 1972. The status of some of the equipment was: The Teletypewriter Adopter Module (TAM) contract was awarded in May 1971 with first delivery of 35 each in May 1972, with the remaining 170 to be delivered between August 1972 and December 1972; the Teletypewriter Control Unit (TCU) contract was awarded in June 1971, with 20 each delivered in April 1972 and the remaining 82 to be delivered by September 1972; the Transmission Identification Generator (TIG) contract was awarded in June 1971 and 20 each delivered in February 1972, and the remaining 41 in March 1972. Five buy lists for installation material in accordance with BOMs submitted by the using activities were processed through Tobyhanna Army Depot (TOAD) for procurement action. Approximately 75% of the material was available at TOAD; deliveries of the TCU, TAM, and TIG were to be completed by December 1972; 80 TCUs, 35 TAMs, and all site TIGs were delivered to TOAD. The installation of the Terminal Program started in March 1972, with final completion in June 1973.

DSSCS/AUTODIN Integration Project

(U) This project would provide a capability which would allow concurrent, but separate and secure transmission of DSSCS message traffic with AUTODIN traffic through Overseas AUTODIN Automatic Switching Centers (ASCs) on a fully automated store-and-forward basis, which would recognize the priority precedence of the traffic involved. This would be accomplished by expansion and modification of the present Overseas AUTODIN ASC hardware and software. It would expand the core memory capacity and provide an additional DSSCS yellow patch facility at each operational Overseas AUTODIN ASC. A contract was awarded on 29 June 1970. Contractual effort on this project was scheduled to be performed in six phases to: Provide AUTODIN ASC Test Bed: provide expanded core memory for PPM and 12 Overseas AUTODIN ASCs; provide an additional Red Patch Facility for PPM and 12 Overseas AUTODIN ASCs; relocate a Southeast Asia AUTODIN ASC; install ASC at Augsburg, Germany; and to provide maintenance support for Fort Detrick and Augsburg.

AUTODIN - Relocation of Alaska ASC to Korea

(U) AUTODIN relocation of Alaska ASC to Korea provided the relocation of the Wildwood, Alaska AUTODIN ASC to Taegu, Korea. The switch, originally of 200-line capacity was to be reconfigured to reduce the capacity to 100 lines prior to installation at Taegu. O&M responsibility would be transferred from Air Force to Army upon activation of the ASC in Taegu. Establishment of lines with Alaska subscribers was completed. The Wildwood ASC was shut down, the dismantling was in process, and initial shipments made. The site survey at Taegu was completed, the architectural and engineering (A&E) design drawings completed, and building modification work started. The BOD of the main portion of the building was achieved on 1 June 1972. The Uninterrupted Power Source (UPS) portion, addition to building, was forecast for BOD on 15 August 1972.

DCS Augsburg Transmission Upgrade Project (EWCS FY 70)

(U) The European DCS contained line-of-sight (LOS) microwave links that were being established or upgraded under the EWCS program. All links were multi-channel and varied from 60 to 600 voice channels. The channels in the system were United States owned and were used for AUTOVON, AUTODIN, Command and Control, Common User Military Telephone, and other specialized purposes. This program involved 10 LOS microwave links and 11 terminals. The program was divided into Phases I and II. The main purpose of Phase I was to provide Site 300 at Augsburg with an early access to the Defense Communications System. Phase II consisted of the installation of the remaining radios, as well as the multiplex, orderwire, technical control facilities, and related hardware.

All government-furnished equipment (GFE) for the EWCS FY 70 was procured, requisitioned and delivered. The major items included AN/FRC-80 radios, generators, AN/FCC-67s and AN-UCC-4 multiplex equipment. A subsequent change to frequency assignments necessitated the awarding of a contract to retune the AN/FRC-80 radios. Phase I of the EWCS FY 70 was completed and a contract for the Phase II portion of the program was awarded. This contract included the installation of the remaining radios, as well as the multiplex, orderwire, technical control facilities, and related hardware.

(U) Delay in award of the contract for Phase II (due to a contractor protest) would have precluded meeting the required date to provide Site 300 at Augsburg with access to the DCS. However, by way of a temporary arrangement, tactical multiplex and technical control equipment was installed and access was attained. A decision was made to eliminate the Scope Creek requirements from the EWCS-70 Phase II contract and to have this task performed by the government under the Technical Visit Program (TVP). This action resulted in a saving of approximately $80,000. During the period, the award of the EWCS-70 Phase II was held up due to a contractor protest; decision was made to retain the original procurement concept of a competitive type contract. Only two contractors were invloved, one of which was the protesting contractor, and a negotiated type of contract was considered. As a result of this decision, the final contract price was approximately $900,000 less than the initial cost proposal of the original responsive contractor.

(U) In regard to lessons learned, when substantial quantities of a fully provisioned GFE are furnished a contractor, determination should be made whether the supply system could furnish sufficient repair parts needed for installation within a short time. The supply system normally cannot immediately provide all repair parts needed for installation due to low authorized stockage levels, demands made on the system by equipment in the field, long lead time for procurement of certain parts, and non-stockage of high dollar value, low mortality parts. If it is not possible to extend the installation schedule to permit requisitioning parts through the supply system, contractual provisions should be made to have the contractor supply the parts in whole or part depending upon supply system response. This action would preclude delay in installation with possible increased contractual costs and savings in cost of parts if they could be acquired through the supply system.

Integrated Joint Communications System - Pacific - (IJCS-PAC)

(U) IJCS-PAC is a wide-band system between the Philippine Islands and Japan, via the Taiwan and Okinawa Microwave Subsystem. Submarine cable links Taiwan and Okinawa, and troposcatter facilities link Okinawa with Japan, and Taiwan with the Philippines. Communication between Taiwan and the Philippines was also provided by commercial circuits. The subsystems on Taiwan and Okinawa were made operational on 8 June 1971 and 19 July 1971, respectively. The submarine cable between Taiwan and Okinawa was installed by the USAF and was operational on 19 January 1971. USASTRATCOM assumed operation and maintenance (O&M) of the two cable terminals 19 January 1972.

(U) An underseas cable was to be installed by the Air Force between Taiwan and the Philippines to replace the tropo and commercial facilities. The request for proposal (RFP) for this cable link was advertised by the Air Force during the week of 14 February 1972. Operation of the Taiwan subsystem passed from the contractor to the Army on 8 June 1972. The IJCS-PAC system, less the underseas cable from the Philippine Islands to Taiwan, was to be accepted by the O&M commander, 19 July 1972. The complete implementation of the modification to the Single Frequency Signalling Unit in the system was scheduled for September 1972.

Korea Wideband Network (KWN)

(U) This consists of three major tasks: minimal upgrade of the Republic of Korea Air Force (ROKAF) system and its interconnect/interface to the US-operated Defense Communications System (CDS) backbone; minimal upgrade of the Republic of Korea Army (ROKA) system and its interconnect/interface to the US-operated Defense Communications System (DCS) backbone, and upgrade of the US-operated DCS backbone system which extends from Camp Red Cloud in the north to Changsan in the south. The backbone system included 12 sites to be upgraded.

(U) The ROKAF, which was being accomplished by the USAF, including the identification of all interconnect/interface requirements, was 70% completed; the installation phase of the ROKA upgrade was completed; and the Commando Joe portion of the backbone system was complete. This latter effort encompassed an increase in channelization from Richmond to Bucket in the north and from Richmond to Taegu in the south. In addition, the spur from Richmond to Kunsan was upgraded to support the increase in channelization. The remainder of the program was scheduled for completion in November 1972.

Cobra Talon

(U) This project consisted of installation of an urgent DCS extension in Thailand between Phitsanulok and Ko Kha. The link was installed and tested by USASTRATCOM-Thailand and turned over to the USAF for operation and maintenance in November 1971. This project was described in CINCPAC as one of the most important communications projects in the Pacific and required that it be completed 1 December 1971. The link was completed ahead of schedule on 22 November 1971.

DCO-Okinawa Upgrade MITS

(U) This project consisted of providing upgraded service to 14 DCOs and associated telephone trunking on Okinawa. The Military Integrated Telephone System encompasses six Army sites, six Marine sites, and two Air Force sites. The draft implementation and installation plan (IIP) was prepared and forwarded to ALCON for review and comment; preliminary communications engineering requirements were completed by USACEEIA, and four buy lists were forwarded for procurement action.

Taiwan Laterals Project (TLP)

(U) This project is an upgrade of lateral sites on Taiwan which interface with the IJCS-PAC backbone system. The engineering was completed in October 1971, installation was started in February 1972, and test and acceptance was in progress. The IOC was scheduled for July 1972.

(U) DCS Contingency Station (DCSCS) Project is a quick-reaction project to fabricate and field three DCS Contingency Stations, one for each MILDEP, and was being implemented in two phases; the initial phase (Phase I), and Augmentation Phase (Phase II). The project comprised 15 major transportable subsystems and the DCS Entry Stations Preconfiguration Project. The three stations were being assembled as follows: Army's at 11th Signal Group, Fort Huachuca, Arizona; and the Air Force and Navy's at Lexington-Bluegrass Army Depot (LBAD). Phases I and II were approximately 90 and 30 percent complete, respectively. The initial stations (Phase I) were fielded and operational. In addition, improvements to the operational capabilities of the stations were being made through the implementation and evaluation of continuous feed-back data from the O&M activities.

DCS Microwave Radio

(U) This was a multi-year requirement which would supply the three services with a common microwave radio. Interim repair parts, equipment manuals, and needed test equipment was to be delivered

concurrently with the end item. The project plan was that industry would be solicited for proposals. Those submitting acceptable documents would enter into a lease contract which would provide hardware to government personnel for testing. Those vendors which met the minimum government requirements as tested were to be solicited for production quantities. The testing program was accomplished, using technical proposal verification models (TPVM) leased from three offerors; the test results were evaluated, and logistical evaluation was completed. USACSA subsequently recommended to DCA that solicitation for production units include all three offerors in view of their respective standings, proximity of scores, test accuracies, and the failure of the Government to notify offerors of unsatisfactory equipment performance.

(U) The testing program revealed several weaknesses which could be corrected if the procurement activity was required to determine the adequacy of and approve the test plan and test procedures prior to the start of the test program. In addition, the test personnel were to be charged with the responsibility of determining and verifying the accuracy of each test set-up, and were to be provided procedures and format for reporting raw data, failures, problems, data reduction, findings and the final report. Further, definitions of equipment failures had to be clearly established, and if specific tasking for testing was not assigned to USACSA, the Project Manager was to have full authority over direction of the testing effort so that it was conducted in total as part of the source-selection process.

New Family High-Frequency Transmitters and Receivers, AN/FRT-76, 77 and Receiver AN/FRR-79

(U) This equipment, a 2-kw transmitter, AN/FRT-76, a 10-kw transmitter, AN/FRT-77, and a receiver, AN-FRR-79, built to DCA requirements contained all state-of-the-art features including frequency synthesis and remote control automatic tuning. The equipment was intended for upgrading worldwide Army installations of high-frequency single-sideband equipment. The following sites were established: Carlisle Barracks, Pennsylvania, Fort Ritchie, Maryland; Teheran, Iran; Pirmasens, Germany; Kwajalein (Safeguard). In addition to the aforegoing, equipments were installed at the Fort Monmouth Signal Center and School for training purposes. Current efforts were in procurement and monitoring of contractor technical assistance for installation, operation, and maintenance of the equipment.

(U) All test equipment was delivered, including a depot module testing facility; the 35-series technical manuals were received by USAECOM; RPSTLs had been finalized and sent to the contractor for preparation for TAGO printing; and the final increment of repair parts was delivered to the field. Also, full training capability was

established at the USACSA with the delivery of test equipment and technically verified draft TM's. Anticipating difficulties in technical review by USAECOM of the -35 series TMs, USACSA arranged for a technical verification to be performed in the contractor's plant. USACSA arranged for Signal School instructors and depot maintenance personnel to assist USAECOM in this effort. As a result, manual review time was reduced and more technically accurate manuals were achieved.

Emergency Action Consoles

(U) This equipment is for fixed-plant use and serves as a voice communication system within and between operation centers in Army Command and Control Network (ACCNET), providing Army commands, world-wide, a quick link with each other, and a direct connection into the AUTOVON network. Equipment installation was achieved at the following sites: Fort McPherson, Georgia; Fort Meade, Maryland; Fort Sam Houston, Texas; and Korea. Because of late BOD at one site (Korea) a possibility of a large slippage in installation was averted by a decision to continue contractor personnel on site rather than returning them to CONUS and then returning to the site when it became available. As a result, the installation was completed only 4 days after the original scheduled completion date.

Spanish TCN

(U) The Territorial Command Network (TCN) Spain, a MAP Project, was to provide a communications system consisting of broadband links utilizing Tropospheric Scatter, line-of-sight, and diffraction modes of propagation to provide reliable voice and teletype communications for elements of the Spanish Army and Navy. Very early in the project, the need for a Memorandum of Understanding (MOU) was jointly established by representatives of DA, USAMC, USASTRATCOM, USACSA, and USACEEIA, and on 5 May 1972, it was signed by both Spanish and United States officials. The Commanding General, USACSA, presented the TCN cost estimate to the US Ambassador, Chief, Joint US Military Group (JUSMG) and the Spanish Army Chief Signal Officer on 28 October 1971. The estimate was considerably higher than previous estimates and did not include O&M costs.

(U) Representatives of the Spanish Army visited Fort Monmouth 10 - 21 January 1972 to be briefed in detail on the rationale behind the cost estimate. At this time, the Draft Technical Specification and a requirements document delineating all requirements for the TCN were reviewed by these Spanish Army personnel. The final Draft Technical Specification with known TCN requirements was completed by USACEEIA and provided USACSA for inclusion in the procurement data package on 21 April 1972.

(U) During May 1972, the Deputy Project Manager for TCN visited Spain to review the technical specification and discuss project implementation. There were two new requirements for the TCN. The capability for data transmission was increased and several sites for the Spanish Navy were added. These requirements were to be part of the TCN contract and not handled as an "add-on" effort. The Spanish officials realized that this would cause a delay in the project commensurate with the time required for the complete requirements to be formulated in Spain, and incorporated into the Technical Specification and procurement data package.

Imperial Iranian Gendarmerie Communications System

(U) This was a MPA project consisting of HF SSB, VHF, and UHF transceivers and was upgraded to the IIG's present CW/messager system. The installation effort involved approximately 2,300 sites at various command levels. The original installation contract was awarded to Melpar, Inc., which was subsequently terminated for default. Certain radio sets (manufactured by RF Communications, Inc., a subcontractor) furnished by Melpar were found to be unacceptable due to defects in quality and performance. Accordingly, General Electric (GE) was awarded a contract on 10 December 1971 for replacement radios. The project then involved delivery of the GE radios, and the upgrade and retrofit of all sites for test and acceptance of the system.

(U) The first increment of GE radios was delivered to the IIG on 6 February 1972. Highlighting this first delivery of radios was the close coordination and supervision that was maintained by USACSA's Product Assurance Office to insure the quality and operability of the GE radios. By the close of FY 1972, 800 GE transceivers were installed by the IIG with only 12 being defective. The primary management technique which proved effective in managing this project was the personal coordination between the DPM and directorate level staff. In addition, personnel visits, inspections, and follow-up actions all had a significant impact in expediting actions on the IIG. Another successful management technique required that all major milestones and events be assigned a task number with suspense dates established for follow-up.

(U) Further, a thorough review of the provisioning lists by USAECOM produced a change in the maintenance concept which resulted in the reduction of spare parts required for support. Based on the foregoing, the DPM requested a thorough review of the three volumes of repair parts for the equipments retained under the Melpar contract. As a result of this review, approximately $200,000 was saved by eliminating parts that were not required.

(U) In the procurement area, commercial off-the-shelf equipment procurement procedures proved cumbersome and lengthy. The unique nature of a MAP/AID project required streamlining of the procurement process to meet the short lead times frequently encountered. The procurement of piece parts to support installation and testing of the system also deserved attention. Normally, the time required for the procurement of piece parts averages 60 days. On a test basis, it was determined that, by the use of imprest funds with direct procurement, delivery could be obtained within 14 days.

Foresight Sierra Communications System

(U) This was a Military Assistance Program to furnish a fixed communication system for support of the Armed Forces of the Republic of the Philippines. The basic system consisted of a 320-mile, 60-voice channel microwave radio tail segments to established fixed communications centers at Camp Lapu Lapu, Cebu and Fort Bonifacio, Manila. It was planned to expand the existing system by the addition of a 60-voice channel troposcatter radio to Cagayan de Oro, and a 48-voice channel troposcatter radio extension to Zamboanga; both sites are located on Mindanao. The proposed expansion would be accomplished by the maximum use of excess Southeast Asia assets such as the AN/GRC-170 radio terminals.

(U) The basic system was completed by the contractor, Philco-Ford, and turned over to the Philippine Government in formal ceremonies on 8 November 1971. In addition, the engineering of the Armed Forces of the Philippines (AFP) training facility was 50% complete.

The Royal Thailand Army (RTA) Communications Network

(U) This was a MAP project which was to provide a direct and reliable voice communications network in the high-frequency range among four network control stations located at RTA Headquarters in Bangkok to 33 substations. Voice communication was attained by means of the single-sideband type of modulation. In addition, the network would include variable tuned antenna systems, and remote controlled units. All equipment was shipped in January 1972 for installation by the RTA. To expedite the training of RTA personnel, one complete system was shipped in November 1971.

(U) The early shipment of the training equipment was achieved because Delta Electronics, Inc., agreed to deliver one system, in advance, for training purposes at no increased cost to the government. The radio gear was delivered in August 1971 to the Sacramento Army Depot staging area; cooperation by the Sacramento and Tobyhanna Army Depots was also an aid in shipping this equipment ahead of schedule.

Indonesian Communications Systems (INDOCOM)

(U) This was a 5-year (FY 71 to FY 75) Military Assistance Program (MAP) project to provide a communications system for the Republic of Indonesia, which would enable effective control of the military superstructure by the Indonesian Hankam (US equivalent is our JCS) and other high level government agencies. The equipment option to the Collins Radio Company contract for the Hankam SSB-HF Network was exercised in December 1971, and the hardware was scheduled to be delivered to SAAD by 31 July 1972. By review of the Collins contract option, it was determined that utilization of a GSA contract to purchase the UHF-FM equipment would be more cost effective. A GSA contract with Motorola was signed on 8 May 1972 to purchase 36 UHF-FM terminals for use as keying links in the Mabad-Kodam and Kawilhan. This equipment was to be delivered to SAAD by 30 September 1972.

(U) The follow-on effort for the INDOCOM project was to be provided for by submission of Engineering Requirements Plans by the US Defense Liaison Group (USDLG) to include Bills of Material (BOM) to complete the other networks. The Engineering Installation Plan for the Mabad-Kodam Network was reviewed for technical feasibility and completeness of BOM. Comments were forwarded to CINCPAC on 12 May 1972. Upon CINCPAC acceptance of USACSA comments and the USDLG, procurement of the BOM was planned to be initiated through US Army International Logistics Command (USAILS).

Worldwide Technical Control Improvement Program (WWTCIP)

(U) This project encompasses the manual upgrade of 10 technical controls at an estimated cost of $3.7 million. Six of the technical control facilities were located in Korea and were being upgraded in conjunction with the Korea Wideband Network project. The KWN provided for the improvement to the transmission facilities in the DCS backbone communications system in Korea. The remaining four sites, located in Stuttgart, Germany; Fort Detrick and Camp Robert in CONUS; and Asmara, Ethiopia, were being upgraded primarily in conjunction with Phase II of the Defense Satellite Communications System Project. Competitive procurement of the voice frequency line conditioning equipment required the use of non-existent specifications. A joint USACSA, USACEEIA effort was made to write the specification. The working group completed the job in 2 weeks. Sacramento Army Depot was tasked to provide technical documentation and furnish and provision the test equipment for the KWN technical controls.

(U) Bids solicited for the VF line conditioning equipment were opened in May 1972. A pre-award survey was conducted in May and a

contract was awarded in June 1972. New equipment training would be accomplished by a three-man new equipment training team from USACEEIA. Cutover dates for the Asmara facility were scheduled for March 1973. A significant achievement in the management of the WWTCIP was the accomplishment of the Installation and Implementation Planning (IIP). Previous IIPs have been oriented toward a single fiscal year effort. The IIP for this program would act as a management model for the construction of future fiscal year IIP's. The model would be flexible enough to resolve problems from previous fiscal year programs.

CHAPTER VII

SUPPLY*

Introduction

(U) On 31 March 1972, the Directorate for Distribution and Transportation was redesignated as the Directorate for Supply.[1] This action was accompanied by a reorganization, the transfer of certain functions, and the establishment of a new unit, the Inventory and Location Office. Functions transferred to the Directorate for Supply were the inventory management operations for PEMA secondary items and repair parts, from the Directorate for Requirements and Procurement; and the responsibilities for the AMCID Stock, Unit Readiness, Logistics Doctrine, and the AMC Command Supply Discipline Program, transferred from the disestablished Logistics Operations Directorate.

Five-Year Program Objective

(U) The Director of Supply Program Objective Guidance consisted of 21 major program objectives: fifteen supported the AMC goal to provide logistics management and support in a timely manner; four supported the AMC goal to improve management of men, money, and materiel efficiently, and effectively achieve the mission within imposed constraints; one supported the AMC goal to upgrade the quality and reliability of Army materiel; and one supported the AMC goal to modernize and improve the AMC facilities and equipment.

(U) Certain changes in the objective program took place during the fiscal year. This was accomplished to improve specific objectives, and to realign milestone objectives due to the lack of resources. One objective known as "Project Clean" was added, and two objectives pertaining to storage place utilization were deleted as no longer required since the targets had been achieved.

(U) During the first half of the fiscal year, two of the 22 objectives were off-target, and two were marginal (within the 10 percent tolerance prescribed by the Planning, Programming and Budgeting

---

[1] Directed action by Deputy Commanding General to D/PT&FD, dated 15 March 1972, subject: Disestablishment of Directorate for Logistic Operations. DF from AMCPT-SM to Director of DGT, dated 24 Mar 72, subject: Disestablishment of Directorate for Logistic Operations.

*The bulk of this chapter was prepared from submissions from the AMC Directorate for Supply.

Management Information System). The remaining 18 either met or exceeded the overall targets. Accomplishments during the second half of the fiscal year were below those of the first half. Five objectives were off-target and three were marginal.

(U) The Director of Supply FY 1973 Program Document was to consist of eight major and 12 minor objectives.

Plans and Programs

AMCID, ASF

(U) The US Army Materiel Command Installations Division (AMCID), Army Stock Fund (ASF) operated under a stock fund charter issued on 23 June 1964 by the Department of Defense. It (AMCID) financed the procurement pipeline and inventories of secondary items and repair parts stock fund operating supplies, materiel and equipment at Class II installations under the command of the US Army Materiel Command, the Surgeon General, the Strategic Communications Command, the Safeguard Command, and the US Army Security Agency, world-wide. The missions supported included the depot operation, maintenance and rebuild; hospitals and medical centers; research and development; Army schools and centers; clothing sales stores; and subsistence commissaries.

(U) As initially submitted, the fiscal year 1972 operating budget for AMCID proposed a program of $318.9 million sales and $308.0 million obligation authority (OA). Planned programmed workload, related Command Operating Budgets and programs for all branch offices supported the estimated program as submitted. Office Secretary of Defense/Office of Management and Budget reduced the program to $293.0 million sales and $287.0 million OA, on the basis that anticipated maintenance programs would not materialize and certain constraints would be imposed on consumer funds by Congress. Late in the year, workload materialized for SEA at a pace greater than the authorized program would support, therefore OSD/OMB increased the stock fund programs to $294.8 million sales and $293.1 million OA.

(U) For Fiscal Year 1973, the initial request was submitted for a sales program of $300.0 million and $297.8 million in OA to support those sales. This did not include consideration of the medical/dental facilities at Fort Gordon, Georgia. The increased maintenance requirements received in the 4th Quarter, FY 1972 could not be handled until FY 1973. Consequently, the Fiscal Year 1973 program was raised to $306.8 million in sales and $300.3 million in OA. During FY 1973, the AMCID, ASF was to provide support to SAFLOG and terminate its support to Sandia Base Hospital which would be assumed by the US Air Force.

Readiness Improvement Programs

(U) The readiness improvement programs were established through the cooperation of major commanders, the Department of the Army, and the Army Materiel Command. These programs were meant to help units to improve and maintain the level of equipment on hand (EOH) and to meet their assigned levels of authorization (ALO).

(U) CONUS. In the CONARC readiness improvement program, priority was given to achieve a high equipment on hand readiness posture of all STRAF units. Significant gains achieved during FY 1972 were largely the result of intensive management by AMC. In addition, AMC was endeavoring to raise the equipment status profile (formerly deployability) of all STRAF units. Also, AMC participated in another CONUS readiness improvement program for units of STRATCOM. This program was initiated in the 3d Quarter of FY 1972 with the 11th Signal Group.

(U) USAREUR. The USAREUR readiness improvement program was aimed at improving and maintaining the assigned readiness posture for active Army units, REFORGER stocks, Prepositioned War Reserve, and other project stocks. In order to achieve and maintain the prescribed state of readiness for equipment on hand, DA directed AMC to establish visibility over all USAREUR shortages. The initial target dates were met and the prescribed state of readiness for EOH was maintained since the inception of the program in October 1969.

(U) USARPAC. The Eighth US Army (Korea) readiness improvement program was broadened during this period to cover an additional 32 reporting units, for a total of 162 units. Of these, only ten remained below their ALO on 30 June 1972. During FY 1972, a reorganization was completed in which all major units converted to the "H" Series TOE. Because of the new items involved, DA revised to 30 June 1973 the target date for all units to reach their ALO.

(U) Reserve components. During FY 1973, the Reserve Component Unit Readiness Improvement Program covered 23 major units, 16 National Guard and seven US Army Reserve. Due to the low priority assigned to them, DA did not set a firm target date for these units to reach their ALO for EOH. Detailed records were set up and follow-up was instituted on approximately 4,300 requisitions. As of 30 June 1972, about 1,500 had been shipped to the units.

(U) Materiel Readiness. During FY 1972, various actions were taken to provide AMC support in improving the operational readiness of specific items of equipment. The actions consisted of exceptional management of AMC repair parts support and technical assistance. Selected items involved included the M551 Armored Reconnaissance Vehicle; M110 Self-Propelled 8-inch Howitzer; M561 Gama Goat; and M102 105 mm. Howitzer.

(U) Repair parts exceptional management was accomplished through the coordination of the supported command and supporting NICP efforts to identify and expedite the shipment of critical repair parts. These actions pointed out the need for a continuing program to identify repair part shortfalls which adversely affected the operational readiness of equipment in the field. Accordingly, routine sources of outstanding repair parts requirements as well as a procedure for generating usable intelligence for NICP use was researched. The objective of the program was to provide NICP's with the means to identify outstanding requirements which were degrading operational readiness to guide preventive and corrective supply/maintenance actions. Technical assistance coordination ranged from identifying supported command needs for specific supply/maintenance assistance to requesting a WECOM mid-life review of the M102 Howitzer to determine the adequacy of design and support procedures.

Command Supply Discipline Program

(U) During FY 1972, the Command Supply Discipline Program (CSDP) entered a new phase of implementation. It consisted of an on-site review of CSDP activity at the AMC installations by AMC Assistance and Supply Review teams in lieu of the Annual Command Supply Review.

(U) This change in the CSDP implementation was the result of the Director's recommendation of 3 November 1971 to the AMC Program Monitor designee, the Deputy Commanding General for Logistic Support. The recommendation proposed that CSDP Checklist Items, inclosed in AR 710-1 be made a part of the agenda items that were to be covered during command visits by the DCGLS Assistance Teams, the NICP Management Review Teams, and the Inventory Control Effectiveness Review Teams. This recommendation was concurred in by the AMC Directorates and approved by the DCGLS on 18 December 1971.

(U) The benefits of the AMC Review Team visits were recognized as an excellent tool in identifying and resolving supply problems. On-the-spot corrections were made whenever possible. When this procedure could not be accomplished, specific guidance to resolve the deficiencies could be provided the activity prior to the team's departure. Follow-up action was possible by a review team during a later visit or by correspondence between the activity and the proponent Headquarters element. Two recurring reports and an annual wrap-up report were deleted as a result of the revised implementation.

Stock Management

Systems

(U) The Selected Item Management System (SIMS) was established in the fall of 1969 to extend asset knowledge and control over selected

items of materiel beyond the CONUS wholesale level. SIMS was implemented on 1 July 1970 to improve visibility and control over high dollar value secondary items worldwide beyond the wholesale level. This system enabled the National Inventory Control Point (NICP) to perform more effective management of its assigned materiel through utilization of worldwide assets.

(U) Although the SIMS program realized a large dollar savings, the program had some problems. These included the lack of standard file formats and data elements; inaccurate asset balances reflected in the Availability Balance File (ABF); and delay in receipt and processing of reports used by the NICPs. Corrective actions included the reformatting data into standard file formats for use by the NCIPs; conversion of purpose and stockage codes to MILSTRIP standard codes; interrogation by the NICP on unrealistic data reported; follow-up on delinquent reporting activities; and consolidation of all SIMS/ABF data processing at the New Cumberland Army Depot during the 1st quarter of FY 1973.

(U) During FY 1972, AMC selected 7,174 items for intensive management under SIMS, representing 90 percent of the annual dollar demand for all secondary items. Another 2,709 items were selected by the Defense Supply Agency for intensive management using SIMS/ABF asset visibility. As of April 1972, the implementation of SIMS resulted in a total dollar savings of $64,933,271.

(U) On 1 July 1971, the responsibility for processing SIMS asset visibility data was transferred from the Research Analysis Corporation to the New Cumberland Army Depot.

(U) A comprehensive review of SIMS was conducted during the period of 1 March - 2 June 1972 by the DA Asset Control Task Force which recommended policy changes to permit more effective SIMS implementation. Additionally, at the urging of LTG Heiser, the Army Audit Agency, toward the end of this fiscal year, undertook an evaluation of the SIMS program with particular emphasis on the reporting activities below the NICP level.

(U) The Intransit Asset Visibility System was implemented on a phased basis beginning in the 4th Quarter of FY 1972. When fully implemented, this system was to provide NICP item managers with knowledge of selected Army materiel intransit. Also, it provided intransit visibility from the wholesale level down to the lowest logistical support unit that maintained a stock record account, the Direct Support Unit.

(U) In this system, the Logistics Control Office - Pacific (LCO-P) through the Logistics Intelligence File (ICGS) maintained intransit asset records on all shipments to and from AMC depots

(including retrograde) plus vendor shipments. A monthly status report was provided to the LCO-P which consolidated the ICCs input with data extracted from LIF and provided a monthly report of selected items intransit to each NICP. Intransit asset information coupled with the data contained in the monthly ABF and the NICP wholesale accounts, provided the item manager with a total worldwide picture for major and selected secondary items.

(U) The Direct Support System (DSS) directly supported supply support activities in overseas theaters, thus bypassing the theater depots and bulk points.

(U) By taking advantage of modern methods of communication, container ships and heavy lift aircraft, the order and ship time was substantially reduced, visibility established over the total supply and transportation system, and overseas depot ROs were reduced to safety levels or war reserves as applicable.

(U) The program was undertaken in two phases. Phase I was completed on 30 June 1971 with 32 units of the VII Corps in USAREUR and seven non-divisional units in Korea participating. Phase II was due to be completed by 21 July 1972.

(U) In January 1972, a DA/AMC evaluation of DSS was conducted and presented to the Assistant Secretary of the Army (I&L). The system was found to be extremely effective and demonstrated that the resupply of units would be performed from CONUS in the same time frame as that from theater depots. In the two years the system was in use, there was no degrading of readiness, supply effectiveness, and maintenance support. Additionally, the overall pipelines were reduced in half and the participating overseas theaters were reduced significantly. It proved to be an extremely flexible system. The visibility and control that it provided gave a sound basis for logistic management decisions.

(U) DSS was initiated in July 1970 in USAREUR with two divisional maintenance OSUs participating. The system in USAREUR was expanded as of 1 July 1972 to 85 units out of a planned total of 116 units. Missile units were scheduled to be phased into the DSS program during the latter part of FY 1973.

(U) USARPAC had 44 units under the system in Korea, 13 units in South Vietnam and eight units in Thailand. By the end of FY 1973, all units in USARPAC were to be under DSS.

(U) Order and ship time, from the day the SSA submitted a requisition to the day the receipt was posted in the SSA account, was reduced from 135 days to 59 days in Europe, and from 130 days to 68 days to Korea.

(U) The visibility provided by the Direct Support System revealed many problem areas in the supply and transportation system. Consequently, DSS gave the problem areas a degree definition which enabled the Army to correct these deficiencies.

(U) Initially, DSU ASLs were found to contain many items which were not demand supported and therefore should not have been coded "P" (concurrent) or "Q" (demand supported). DSS systems coordinators purified these ASLs and the authorized demand criteria were strictly applied. Because this action led to excessive turbulence in ASLs, on 7 April 1971, DA DCSLOG froze for six months the ASLs of the 3d Infantry Division and the DSUs of the 4th Armored Division. This procedure was subsequently amended to incorporate a quarterly submission of ASL reports in lieu of the previous monthly requirement. Coupled with this action, technical procedures in SSAs were improved to insure that NSL requisitions were for items to which the requisitioner was entitled.

(U) The high rate of back orders on the NICP level was a continuing problem which had a detrimental effect on the support given to SSAs through DSS. To improve this situation, the Director of Requirements and Procurement, AMC, directed on 2 April 1971 that available funds at NICPs would be spent first in support of SEA and that second priority would be given to expenditure of DSS ASL. However, the six months' lead time on procurement actions meant that no improvement could be expected before October 1971. On 22 June 1971, the Commanding General, AMC, directed that a policy be announced establishing 100 percent as the immediate objective rate of initial fill for DSS ASL requisitions. No significant progress was made by the NICPs in this area. It was thought that the changed logistics support philosophy inherent in DSS should be adopted by the ICP, and the ICP should become retail demand-oriented rather than dollar-oriented.

(U) Initially, a policy decision was made that ASL items would be located in the TOD (Theater Oriented Depot) on procurement in sufficient quantities to meet DSS requirements. This decision did not have the desired effect since there was little change in the percentage of ASL requisitions that were filled from within the TOD between July 1970 and May 1971. Consequently, on 22 June 1971 the Commanding General, AMC, directed the commodity command commanders to establish a program that would assure the positioning of ASL items in the TOD, and that the objective rate of fill from the TOD of ASL requisitions be 90 percent. Again, the objective was not achieved.

(U) In January 1972, an incremental improvement plan was distributed which scheduled a five percent per month improvement rate.

Intensive monitorship produced some improvement, however the 90 percent rate was not maintained. In April 1972, the burden of determining TOD positioning of stocks was shifted entirely to the NICP.

Supply and Transportation

Supply Performance

(U) Three years ago, a depot's estimate of its own capability largely determined its goal. Since then, goal setting has become more sophisticated and considerably more objective. During FY 1972, goal-setting processes began to take into account many more measures of the depot's capacity, including availability of equipment, resources, space, changes in productivity, degree of automation, and existing programs and requirements. Also, more reliable analytical techniques were applied in particular areas.

(U) Broader use of accepted, statistically oriented techniques added a new dimension to the ability to identify and isolate troublesome areas in depot operations. The use of regression analysis to explore the relationship between workload, expenditures of resources (dollars/people), and performance was introduced during the year with a gratifying degree of acceptance.

(U) A study entitled Directorate Overview of Workload/Resource Relationships examined relationships between workload and resource utilization of AMC depots by major functional elements in the AMC chart of accounts. The findings not only established a parity for performance, but served as a basis for further inquiry from depots exhibiting unusual departures from normality. Greater use of this approach was foreseen for FY 1973.

(U) The statistical theory was also used successfully to provide estimates concerning the distribution of receipts which were reported daily to ICP. Existing reporting vehicles provided the total number of lines processed on time. In the case of the items from procurement, items were considered to be on time if reported within six days. A request from the Director of Supply created the necessity to determine the distribution of actions within each time frame, that is, the number of lines processed after one day of receipt and two days of receipt. This information was not available from the field, or not readily obtainable unless a considerable expenditure of clerical manhours was made to review depot records. Estimates made by the application of the statistical theory proved to be highly accurate. It was not necessary to burden field activities with the problems and costs associated with a data review to assemble the desired information on a "special" basis.

Depot Modernization

(U) Equipment procured for the depot modernization program, either by individual depots or by a central procurement action, totaled 4.3 million. Acquisition of material through central procurement at Tobyhanna Army Depot accounted for $682,223, of which $267,443 were invested in packing, preservation and packaging equipment. The remaining $414,780 was invested in intra-depot transporters. Individual depots invested a total of $3,891,266 in equipment. This varied from systems such as automatic paint systems, paper conveyor and document handler, to mobile ramps, lift tables, and drum handling equipment.

Containerization

(U) The goal in containerization was to increase its growth to the point of diminishing returns. AMC policy was to utilize commercial containers and Army-owned or leased containers where feasible. Two procedures that increased container utilization were the development of managerial procedures which encouraged container utilization, and the increased compatibility between containers and various types of cargo.

(U) Containerization was carried out at three locations: at the shipping activity; at the consolidation/containerization facilities; and at the ports of embarkation. During FY 1972, the degree of containerization attained exceeded the target by approximately 25 percent.

Traffic Management Information System

(U) In order to achieve visibility over the productivity and performance of AMC shipping activities, a management system was under development. It was based on the use of indicators of effectiveness (IOE). IOE's being utilized included ton-mile costs; shipment routing mix; rate of transit utilization; rate of containerization and consolidation; and ratio between cargo transportation requirements forecast and the actual lift utilized.

(U) The data collected in this Fiscal Year was in the process of being analyzed to identify acceptable parameters for performance. Each depot was being evaluated with other depots handling similar commodities. When realistic performance parameters are established, the system will be adopted to significance reporting, whereby below par performance will be highlighted for the purpose of corrective action.

Transportation Management Career Intern Training Program

(U) Increased emphasis on transportation management and the specialized nature of the skills required escalated the need for personnel who were adequately trained and experienced in the development and application of transportation management concepts and techniques. Additionally, the complexities of newly-developed transportation management procedures, and the necessity for providing uniformity of approach in the transportation management function, emphasized the need to accelerate development of high quality transportation management personnel in staffing AMC activities at journeyman levels and above. A sound program of recruitment and training was essential in order to assure a steady flow of qualified persons to meet the anticipated manpower requirements vital to the overall AMC transportation management division.

(U) A separate and distinct career program was established for transportation management by civilian personnel regulation 950-24. Subsequently, AMCR 690-1, dated 16 February 1972, set forth an AMC civilian training program for transportation management career interns. This program was intended to provide an effective guide for the selection, development and training of transportation management career interns. The training provided the transportation management career intern with a program to develop his potential in the transportation management field.

(U) Seven interns, all college graduates, were in training at the depots during FY 1972. Upon completion of this training, they were to be assigned to depots and NICPs. The interns will be brought to Headquarters, AMC, as vacancies arise.

Improved Forecast Procedures for Over-ocean Cargo Transportation Requirements

(U) Accurate forecasts for over-ocean cargo transportation requirements were essential for budgeting purposes, as well as for arranging space allocations. Studies indicated that tonnage actually lifted showed little or no resemblance to those forecast. Consequently, actions were taken at various levels to develop procedures designed to improve over-ocean cargo transportation requirements forecasts.

(U) An automated forecasting feedback system was developed which enabled identity by item manager of Army-sponsored cargo shipped from CONUS to overseas areas. This system was used in conjunction with the new automated forecasting procedure developed by Headquarters, DA. A data bank was established at the logistics control office, Pacific, which identified forecasts by AMC commodity command, and by the logistics control office for DSA/GSA-managed items. The feedback system was to provide the opportunity to measure forecasts versus life performance by the item manager.

(U) A standard operating procedure was being developed for use by the commodity commands when forecasting their over-ocean transportation requirements. Methodology and techniques were to be developed which were to consider historical data, available information about the future, and commodity peculiarities of individual item managers. The end product was to be designed to provide an operating procedure and program data for computer application by each commodity command and logistics control office.

(U) It was recognized that the role of the supply manager in determining over-ocean transportation requirements should be expanded. Commodity commands had been advised that while transportation was the channel for forecasting, the impetus must come from the supply manager. The improvement in dialogue and interface between transportation and supply managers in AMC commodity commands remained a continuing objective of Headquarters, AMC, as well as the improvement of over-ocean transportation requirement forecasts.

Special Assignment Airlift Missions (SAAMS)

(U) During Fiscal Year 1972, the Military Airlift Command (MAC) flew 751 missions in support of AMC Army-sponsored shipments at a cost of $41,401,909. Special weapons and conventional ammunition requirements from the Munitions Command accounted for 1949 of these flights, and $6,764,921 of the total cost.

(U) All SAAM requests were reviewed for compliance with Department of the Army policy in order to reduce demands and costs for use of this high priority type of transportation. Costs of SAAM flights generally exceeded that of channel flights, since SAAM costs were based on a "mission cost" for each flight vice the "cents per pound" utilized for channel flights. However, an attempt was made to bring SAAM costs more into line with channel costs by retrograding AMC Army-sponsored materiel for repair and return to South Vietnam. Unused SAAM returning flights were offered to other Army, Navy and Air Force users and costs were thus prorated.

(U) SAAM requirements for the first three quarters of Fiscal Year 1972 consisted mainly of AVSCOM, MUCOM and AMC research and development items. In December 1971, however, SAAM requirements began increasing under "Project Enhance" to support replacement of South Vietnam combat bases. This buildup increased sharply in the fourth quarter, reaching its apex in May. This was due to a critical shortage of heavy machinery, tanks, personnel carriers, howitzers, and other combat items required immediately.

(U) The chart below indicates the flow of MAC channel cargo and the percentage of increase/decrease of Fiscal Year 1972 tonnage over Fiscal Year 1971.

Areas	Tonnage FY 72	Tonnage FY 71	Percentage Increase/Decrease
Southern Command	1,860	1,040	+79
Europe	13,485	11,155	+21
Mediterranean	3,615	3,275	+10
Other Atlantic	1,706	975	+75
Total Atlantic	20,666	16,445	+26
Total USARPAC	52,886	69,243	-24
Vietnam	29,280	44,483	-34
Ryukyu Islands	6,452	8,064	-20
Korea	8,950	7,955	+13
Thailand	3,362	3,498	-4
Other	4,842	5,244	-8
Northern Pacific	646	790	-18
Total Pacific	53,532	70,033	-24
Total World	74,198	86,478	-14

(U) The overall decrease in the MAC channel Army sponsored airlift for Fiscal Year 1972 was 14 percent. This was attributed to the Army policy to withdraw troops in the Pacific area, and to the effectiveness of the AMC challenging program to divert shipments from airlift to surface modes. Tonnage increases to Europe of 21 percent were due mainly to the proliferation of the Direct Supply Support system in Europe, and to the shipment of mandatory air items under the routine economic airlift program implemented in September 1971.

Troop Support

Petroleum Management

(U) The Deputy Secretary of Defense (DEPSECDEF) directed on 16 August 1971 that action be initiated to centralize and integrate the management of bulk petroleum under the Defense Supply Agency (DSA). Four objectives were included in the plan: the elimination of service stock funding of bulk petroleum; the consolidation of the services Inventory Control Points (ICP) into a single DODICP; the common pricing procedures and standards; and a single point within DOD for billing and payment. The staffing and operation of military-owned bulk petroleum storage and distribution facilities was to remain as a service responsibility.

(U) DSA was tasked to develop a time phased plan to meet the stated objective. A joint task force, established by DSA, developed and submitted a plan that was approved on 19 April 1972 by the DEPSECDEF. In approving the plan, DEPSECDEF specified that the target for Phase I, DSA ownership of bulk fuels in transit and in storage in the wholesale supply system and down to base boundary, would be accomplished by 1 July 1973. Also, DSA was tasked to develop a plan which would permit a decision to implement by 1 July 1974, Phase II, the integration of on-base stocks of military installations into the Defense Stock Fund. An objective of the latter plan was to eliminate the need for all service stock funds for bulk petroleum.

[2]

(U) After the transfer in May 1973 of the Army bulk petroleum management to DSA, the US Army Petroleum Center was to be disestablished. In the meantime, the Petroleum divisions of Charleston Army Depot (CHAD), New Cumberland Army Depot (NCAD), and Sharpe Army Depot (SHAD), whose mission was the surveillance of new procurement and depot stocks, and conduct of the Petroleum Technical Advisory Visit Program, were transferred on 1 October 1972 to the US Army General and Parts Center (USAGMPC). This transfer included command and operational control, but not a physical transfer. Coincidental with the transfer, the designations were changed as follows: Petroleum Division CHAD redesignated USAGMPC Petroleum Field Office, South; Petroleum Division NCAD redesignated USAGMPC Petroleum Field Office, East; and Petroleum Division SHAD redesignated USAGMPC Petroleum Field Office, West.

(U) The AMC Worldwide Petroleum Technical Assistance Team was established in April 1971 to respond to any command request for assistance in solving technical problems related to petroleum products and handling equipment and facilities. During Fiscal Year 1972, the team received various requests for advice and guidance.

(U) It investigated a lubrication problem at the US Army Satellite Communications station at Lakehurst, New Jersey, where it was determined that a new lubricant for the 60-ton antenna was required. The Pitman-Dunn Laboratory located at Frankford Arsenal was tasked to develop a suitable lubricant. USARPAC asked assistance in evaluating

---

[2] Memorandum for secretaries of the Military Departments, Chairman of the Joint Chiefs of Staff, and the Director, Defense Supply Agency, subject: Management of Petroleum, dated 19 Apr 72 (signed Rush).

245-082 O - 77 - 16

the petroleum laboratories in Thailand, South Vietnam, and Korea. A team representative visited the laboratories and provided guidance in proper requisitioning procedures, updating laboratory equipment, and improving testing technique. Another request was for assistance in methods of petroleum storage tank rehabilitation in South Vietnam where recommendations for corrective actions were made.

Reduction of Army War Reserve Requirements

(U) Beginning with the Fiscal Year 1972 General Mobilization Reserve computation for DSA managed items, the Army implementation of OSD logistical guidance provided for significant changes which restricted the type of items for stockage to a "hard core" list of critical combat importance.

(U) Subsequent to Fiscal Year 1972 computation, joint AMC/DSA on-site AMCA/NICP computation validation reviews were made at the recommendation of Troop Support Division, AMC. These reviews were highly effective and DA advised desirability of extending the technique to other commodity areas.[3] Accordingly, all other commodities were scheduled and completed with similar results.

(U) As a result of the "hard core" item policy, the number of DSA items submitted by Army (AMC) was significantly reduced from 67,000 to 13,000 with dollar reduction in requirements amounting to $500 million. Also, this item reduction policy resulted in two OSD actions: (1) provided DSA with $100 million obligational authority in Fiscal Year 1972 to fill Army's general mobilization reserve deficiencies; and (2) authority to sell off $100 million of DSA mobilization assets which did not meet the Army's hard core criteria and reinvest the funds in other Army hard core deficiencies.

Secondary Items Management

Reduction of Army Stock Fund Dues Out

(U) A recurring point of emphasis in the Department of the Army (DA) reviews of the Army Stock Fund budgets and financial and supply management has been the reduction of dues out, that is, materiel ordered by customers which was not available for delivery at the time specified by the requisitioner.

---

[3] Ltr (DSAH-OSR 23 Mar 72, (TAB B)), subject: US Army/HQDSA Meeting on Mobilization Reserve Item Selection, 2 December 1971.

(U) The rate at which dues out were established was a key indicator for gauging the response of the wholesale supply system to customer requisitions. Therefore, the DA emphasis resulted from a desire to improve supply effectiveness as one obvious response to increasingly severe fiscal constraints in annual funding programs. The central problem in dues out reduction concerned the number of variables that affected the amount of stock available at a given time for a specific item and quantity requisitioned.

(U) In spite of the many procurement problems encountered in the stock replenishment process, program execution at the end of April 1972 reflected ratios which not only showed improved supply management, but resulted in the lowest dues out position for AMC in six years.

(U) The term "dues out" was peculiar to financial management in that fiscal reports reflected dues out as "the total dollar value of requisitions with backorders" (materiel obligations outstanding). In supply reports,[4] the dues out equivalent was measured in "thousands of requisitions with backorders outstanding" (materiel obligations outstanding). Essentially, the forecast of dues out which appeared in budget documents as a dollar entry had to be supplemented in the supply management area by policies and programs based on actual receipt of requisitions, if the financial forecast was to be realized.

(U) In response to the need for improved backorder control, AMC NICPs developed agressive internal programs in the supply management area. These programs included backorder reconciliation and cancellation; elimination of marginally demanded items from stockage lists; emphasis on acceleration of procurement actions; recourses to limited fabrication and emergency procurement actions to meet critical item shortages; and emphasis on increased accuracy of management decisions made at the level of the individual item manager.

(U) As shown in Table 3 below, the result was a 68 percent decrease in the dollar value of year-end backorders since 30 June 1967, while sales to customers decreased 51 percent. At the same time, stock replenishment funds decreased 79 percent as the United States involvement in Vietnam decreased.

---

4 "Supply Availability and Workload Analysis Report, MILSTEP Format II," RCS DD - I&L(M) - 782.

Army Stock Fund - Program Change Summary[1]
FY 1967-FY 1972

($ - millions)

	SALES[2]	Cumulative Changes to Base	OBLIGATIONS[3]	Cumulative Changes to Base	DUES OUT	Cumulative Changes to Base
FY 67[4] (Base Yr)	$1094.8	0	$1410.9	0	$338.4	0
FY 68	1116.8	+ 21.8	1221.8	-189.1	252.1	- 86.3
FY 69	1246.8	+152.0	1086.9	-324.0	208.0	-130.4
FY 70	1074.8	- 23.6	440.3	-970.6	120.5	-217.9
FY 71	785.0	-309.8	450.4	-960.5	119.3	-219.1
Projected FY 72	678.0	-416.8	411.7	-999.2	83.0	-255.4
April 72 Actual	533.7	-561.1	296.1	-1114.8	106.6	-231.8
PERCENT CHANGE FY 67/April 72		-51%		-79%		-68%

1/ Source: Army Stock Fund Management Report, RCS CSGLD-1115(R4).

2/ Value of customer requisitions supplied.

3/ Funding for replenishment of NICP inventories.

4/ Beginning of Army build-up for Vietnam conflict.

TABLE 3

CHAPTER VIII

MAINTENANCE*

Introduction

(U) The main characteristics of the Directorate for Maintenance in FY 1972 were a dwindling strength and a shifting organization. By the year's end, due to retirements and transfers, the directorate's on-board staff had dropped to 115. Meanwhile, in January 1972, this ebbing staff experienced a thorough reorganization. The main provisions of this change were the establishment of a Depot Maintenance Division; the consolidation of the three commodity divisions into two; the absorption of the Provisioning Office into the Maintenance Engineering Division; the disestablishment of the US Army Maintenance Board Liaison Office; and the realignment of certain program and budget functions. This took place under the command of BG Eugene J. D'Ambrosio, who was assigned 15 July 1971 to relieve BG George H. Young, Jr., as Director of Maintenance.[1]

(U) Depot maintenance reached division status on 3 January 1972, and was comprised of two branches: the Resources Branch, and the Depot Operations Branch. The Resources Branch was responsible for managing those resources needed to support depot materiel maintenance programs for direct Army, military assistance, and other reimbursable customers. Responsibility for directing the AMC Depot Maintenance Overhaul Program for hardware went to the Operations Branch. This task entailed a continuing surveillance of depot maintenance programming, workload inductions, program execution, and evaluation of the response to customer requirements.

(U) The new Depot Maintenance division was a small element with big responsibilities. Not yet fully staffed at the year's end, its total strength was to be 25. This small compliment was to oversee an $800 million, worldwide operation involving some 30,000 personnel at all seven MSC's and at more than 20 depots and arsenals.

(U) In line with the increasing emphasis upon cost effectiveness and improved efficiency, much of the division's work revolved about plans and procedures. At the heart of this work was the January 1972 AMC Worldwide Depot Maintenance Conference, held 17-25 January 1972 at the Letterkenny Army Depot, Chambersburg, Pennsylvania.[2] Staged to

---

[1] AMC Special Orders 136, dated 15 July 1971, Depot Maintenance.

[2] Ltr, BG Eugene J. D'Ambrosio, Dir of Maint, HQ, AMC, to CG, AVSCOM, et al; 16 Dec 71, subj: AMC Worldwide Depot Maintenance Conference.

*The bulk of this chapter was prepared from submissions from the AMC Directorate for Maintenance.

meet DA requirements, this conference, the first of its kind since 1969, placed most of its emphasis upon the development of requirements and programs.[3] These requirements and programs were then submitted to the 11th DA Depot Maintenance Review Board (DMRB) which met on 31 January 1972 in Rosslyn, Virginia.

(U) The division also had to prepare, again at DA request, a long-range plan for the use of aviation depot maintenance facilities. Submitted to DA on 10 March 1972, this plan discussed both the future use of facilities, anticipated expansion and modernization actions. A prominent feature of the plan was a so-called "two depot concept," by which the Army would consolidate its present four aviation depot maintenance facilities into two. This would mean closure of the Sharpe Army Depot (SHAD) at Stockton, California, and the New Cumberland Army Depot (NCAD) at New Cumberland, Pennsylvania.[4]

Test, Measurement, and Diagnostic Equipment

(U) The AMC Test, Measurement, and Diagnostic Equipment (TMDE) program was approved on 24 May 1969 by the CG, AMC and the primary responsibility was assigned to the Director of Maintenance. The objective of the program was to reduce the TMDE investment and maintenance. This was to be accomplished by reducing the TMDE investment and maintenance expense; eliminating proliferation of special purpose TMDE; and reducing requirements for maintenance skills and manpower. Representative of the magnitude of the TMDE program is the following RDT&E and PEMA tabulation:

FY 72 Programs	Requirements
RDT&E	$11,536,700
PEMA	18,623,898

(U) To improve AMC performance in this area, the Chief of Staff, AMC, approved on 15 April 1972 the appointment of an AMC TMDE project officer, and the establishment of an AMC TMDE project office.[5] At the beginning of the year, a Special Assistant for TMDE was appointed and assigned to the Director of Maintenance, effective 3 January 1972. This assistant monitored TMDE within the command and at the MSC's and subordinate activities.

---

[3]Msg, BG Eugene J. D'Ambrosio, Dir of Maint, HQ, AMC, to AMSAV-C, HQ, AVSCOM et al; 26 Nov 71, subj: AMC Worldwide Depot Maintenance Conference.

[4]Dir of Maint, HQ, AMC, AMC Aviation Depot Maintenance Long Range Synopsis (c. 8 Mar 72).

[5]Summary Sheet from Director of Maintenance to CG, AMC, subject: Designation of Project Officer and Establishment of Project Office for TMDE, dated 7 April 1972.

(U) To further the objectives and goals of the TMDE program, the AMC 5-year TMDE Plan was submitted in April 1972 to DCSLOG. The plan was compiled and coordinated within the AMC commands and consisted of tasks and projects.

Initial Provisioning

(U) Congressional pressure resulted in an intensive effort by AMC over the past two and a half years to improve and optimize initial support at a minimum cost while maintaining acceptable readiness. Although the retrenchment succeeded, the program required the changing of practically all existing initial provisioning policies, procedures, techniques, ADP programs, and establishing significantly new operational procedures. The general overall provisioning concepts changed to include a full consideration for the ability of a total logistics system to react, the use of better management techniques, ADP, and new and faster improved transportation methods. The object was to prevent the buildup of expensive large repair parts inventories in the forward areas. Also, it meant to provide only the stockage that could be justified as absolutely necessary to maintain the required readiness. AMC obtained positive results in meeting these new requirements. During this fiscal year, cost avoidance was still mounting and readiness improved. It was estimated that in FY 1972 cost avoidance in initial provisioning exceeded 50 million dollars. On 24 February 1972, the Secretary of the Army told a Congressional committee that the worldwide logistic readiness for Army equipment had increased from 74 percent to 93 percent for the period of June 1969 to June 1971.

(U) Efforts were made periodically to revise and improve the initial provisioning system. In such an effort, during the period 20 June - 21 July 1971, LTG Walter J. Woolwine made a review of the Department of the Army initial provisioning policies and procedures. His report of the review contained proposed changes to the Army concept of initial provisioning and its management. Of major significance was the recommendation to delegate to Headquarters, AMC, the proponency for DA initial provisioning policy and AMC subordinate commands. The Initial Materiel Support Office (IMSO) mission and functions would be assigned to the applicable commodity manager/project manager.

(U) In response, AMC agreed to the findings of the review with one major exception. This was to the assigning of the IMSO and Support Coordinating Office (SCO) mission and functions to the applicable Commodity manager/project manager.

(U) This recommendation was considered impractical for two reasons. The Commodity and Project Managers were oriented to a specific end item/system whereas IMSO/SCO were functionally oriented to the initial support operations for all end items/systems. Also, the project

managers and commodity managers were not staffed to accept IMSO/SCO missions. Further, the IMSO was the Commodity Command focal point for the management and control of all initial provisioning accomplished within the command, while the SCO had the same type of responsibility for initial support distribution.

(U) AMC, however, offered its own recommendations. This included the proposal that the IMSO and SCO remain within the AMC Commodity Command structure for the management of initial provisioning. Also, that AMC efforts be devoted to the proper staffing and effective positioning of these offices within the Commodity Command organization.

ALPHA Provisioning System

(U) Although changes were still to be made within the ALPHA Provisioning system (one module of the ALPHA system), none of these were in the "nice to have" category. At the same time, there were no changes that would bar proliferation of the system to the other Commodity Commands, other than AVSCOM where it was still in the prototype test stage. Actually, ECOM, TACOM, MICOM, and MECOM had made progress in converting to the ALPHA Provisioning system.

(U) In the meantime, ALMSA had two important changes of short range character which were scheduled for 1 July 1972. Included was the breaking of the Provisioning Master Data Record (PMDR) into four subcells, as follows: edit and validation; file maintenance; RPSTL-TM changes; and RPSTL-TM. This change significantly reduced the program running time by permitting inquiry and retrieval actions without running the entire PMDR. Actions in the RPSTL-TM area could be directed to the RPSTL-TM subcell which, in many instances, reduced the running time by 75 percent or more.

(U) The other ALMSA system change was also aimed at reducing running time. It segmented the PMDR into priority groups by systems. Then the PMDR could be run in segments separately, or in its entirety. For example, the first segment of the PMDR would be that which received 80 percent of the activity over a period of time. The other segment would contain the balance of the file. Each segment would be broken out into the four subcells.

Tire Retreading

(U) The worldwide tire policy was formalized in AR 750-36, Rebuild and Retread of Pneumatic Tires, dated 8 July 1971. Since the formal beginning of the retread program on 5 August 1970, the Army increased the utilization of retread tires from 30 percent to over 58 percent in December 1971. During this period, over 465,000 tires were retreaded with a savings of 14.7 million dollars.

(U) In April 1972, the Assistant Secretary of Defense concluded that maximum overall economics to the Federal Government could be achieved if TACOM were to provide the management of all tires for all Government agencies. On 8 May 1972, DA directed AMC to revise and redefine TACOM's mission to include this responsibility. TACOM began developing milestones to implement this mission. This mission required the Army to maintain the technical know-how of retreading tires in the event of a mobilization.

(U) With the closure of the Letterkenny Army Depot tire retread shop on 30 July 1971, critical equipment was shipped to the Red River Army Depot (RRAD). During fiscal year 1972, RRAD retreaded 1,200 aircraft tires and 7,631 tactical tires. RRAD also rebuilt 165,000 track shoes and 47,000 road wheels for the M113 vehicles. Another 4,267 tires were retreaded at the Tooele Army Depot.

Logistics Support and Rebuild

(U) The Commercial Construction Equipment Plan was intended to simplify the procurement and support of construction equipment which did not require adaptation for military use. The intent was to select equipment by evaluating items in commercial use. Procurement of the equipment would be off-the-shelf, with parts support largely from commercial sources. A test of the plan was being conducted by the procurement of three commercial items: Truck, dump, 20-ton; Crane, truck mounted, hydraulic, 25-ton; and Distributor, bituminous, 1,500 gallon.

(U) General Nikitas C. Manitsas, DCSLOG (S&M), was briefed on 19 June 1972 by the item manager on the Logistic Support Plans for the pilot items. He was favorably impressed, and agreed with the Direct Supply concept being employed. The plan called for a 15-day supply level at organizational level (PLL) and a 45-day supply at DS/GS level (ASL). Depot level parts were to be requisitioned using manufacturers part numbers, since only those items listed in the PLL and ASL received Federal Stock Numbers.

(U) A DOD study group was formed to conduct a comprehensive review and analysis of the policies and practices relating to major maintenance and rebuild of construction equipment. The AMC representative came from MECOM. on 1 June 1972, Colonel June Henry stated that the group had largely completed collecting its information in CONUS and was preparing to make visits to overseas installations. Up to the end of this period, no conclusions or recommendations had been developed.

(U) In December 1971, a DA message[6] made cyclic maintenance of watercraft the responsibility of CONARC. The above change in policy

[6]DA message DALO-MTE-M, dated 301600Z Dec 71.

relieved the CG, MECOM, of duties involved in cyclic drydocking: bottom inspection, repair, and painting. CONARC indicated that it was capable of implementing policy as contained in AR 750-1 (1 May 1972) and would assume full responsibility by 30 September 1972.

Aircraft Depot Cyclic Maintenance Criteria

(U) The cyclic validation project to validate/revise the cyclic overhaul criteria for Army aircraft was assigned to AVSCOM in 1967. Inclusion of this project as part of the DCSLOG Aircraft Surveillance Project, and emphasis placed on it by the Joint Commanders Panel report emphasized the importance of continuing the work at a high level of effort. The results of this project were expected to be useable as a maintenance management tool for determining when an aircraft was a valid candidate for depot overhaul, and for long range projection of depot program requirements. For this reason, the AVSCOM Directorate of Maintenance was looked to by HQ, AMC, as the focal point for completion of the project, even though the majority of the work during the past two years was performed by the Systems Engineering Divisions.

(U) In a letter dated 10 January 1972, DA requested AMC to make an evaluation to justify or revise the five-year cyclic overhaul requirement for peacetime operations. The revised study was completed by the Army Aviation Systems Command and the recommendations were approved by the AMC and DA. These recommendations were: (1) That aircraft be selected for return to depot based on individual aircraft conditions and the economics of field support as shown in available Fleet Management Data; and (2) That selection criteria be based on an aircraft condition profile derived by physical inspection and analysis of field reported maintenance and flight data.

Missile Support

(U) Recognizing that the phase-down in Vietnam operations would have enormous impact on depot maintenance activities, studies were initiated to insure retention of a capability for satisfactory missile support to the Army. It was determined that missile system depot maintenance work would have to be concentrated at primary and secondary depots, if critical skills were to be retained. Accordingly, studies of the advantages and disadvantages of contractor versus depot performance of missile system modifications were made. In the case of modification of the Basic Hawk to the Improved Hawk missile system, it was found that validated savings of approximately six million dollars could be realized by performing the modification and rework at Pueblo Army Depot. Further, approximately 380 trained personnel could be retained for continuing support of the Army at depot, field, and

organizational level. Therefore, a portion of the Improved Hawk Conversion Program was approved for performance at Pueblo Army Depot. A similar study on modification of the PERSHING missile system resulted in an increased maintenance workload for the AMC depot system.

(U) Department of the Army decided in FY 1972 that the NIKE HERCULES missile system would remain in the Army inventory for an extended period of time. This posed extensive support problems because of the existing age of the system, and the fact that portions of it were obsolescent or worn out. Necessary actions required in the maintenance missile area included the following: Cannibalization of certain systems to obtain repair parts; and continued engineering support services to update or redesign repair parts or components where the original vendors were no longer willing to manufacture replacement items. Additionally, maintenance was involved in actions to concentrate NIKE HERCULES systems and secondary items at one depot in order to minimize stockage and supply problems.

Air Defense of Korea

(U) The HAWK annual service practice (ASP) in Korea, in October-December 1971, revealed certain performance deficiencies, some of which were attributed to theater maintenance operations. At the suggestion of General Palmer, VCSA, the CG USAEIGHT, General Michaelis requested a DA team visit to Korea to determine the most appropriate manner for improving the HAWK performance.

(U) A nine-man QA/QC team was dispatched and arrived in Korea on 20 March 1972 for a scheduled stay of 90 days.[7] The team was assigned the following specific functions: (1) calibrate test equipment and validate newly developed calibration procedures; (2) evaluate the quality of missiles being processed for the upcoming firings; and (3) prepared recommended QA/QC plans and carry out the on-the-job training requested by USARPAC. The team proceeded immediately to test and calibrate the 28 missiles that were to be used for the ASP firing in May 1972. It also undertook to review QA/QC operations and instruct personnel in procedures.[8]

(U) Under the guidance of the QA/QC team, action was initiated to alleviate the Eighth US Army (EUSA) maintenance backlog by the direct exchange of 75 complete missiles from the Pueblo Army Depot, Colorado.[9] The first 28 missiles were airlifted on 27 April 1972 by two special

[7]Director's Significant Action Report, Maintenance, 13-17 March 1972.

[8]Director's Significant Action Report, Maintenance, 21 April 1972.

[9]Director's Significant Action Report, Maintenance, 24-28 April 1972.

assignment aircraft missions. Forty-eight were removed by truck to McCord Air Force Base, Washington, for normal channel airlift. The extra missile was sent to make a balanced truck load of 12 missiles.[10]

(U) On another approach to the amelioration of the situation, EUSA requested MICOM's assistance in negotiating a contract with Raytheon for additional in-country support of HAWK. EUSA provided the funds. Contractual requirement was for the overhaul of 100 missiles and 500 chassis for ground support equipment. The target date for the start of this additional effort was 17 April 1972.[11]

(U) Action was taken to expedite shipment of HAWK repair parts and tools by air to help the supply problems. Also, EUSA was requested to identify tool shortages and test equipment problem areas.[12]

(U) In response to the AMC inquiry about tools and test equipment problems, EUSA submitted a list of unfilled requisitions for test equipment and test equipment down for maintenance. There were 34 requisitions ranging in age from two weeks to seven months. One of the line items was assigned to MICOM and the rest to ECOM. There were 97 pieces of test equipment, comprising 15 different items, down for maintenance. Two of the items were assigned to MICOM and the rest to ECOM.[13]

(U) On 2 May 1972, the validation firings resulted in seven successes and one failure.[14] Two days later, the firings resulted in three successes and one blow-up for a total of ten successes and two failures.

(U) Other validation firings, on 11 May 1972, consisted of nine missiles with five successes. Of the four failures, only one was of undetermined cause. This made a total of 21 missiles fired with 15 successes. The final ASP firing of three missiles on 15 May resulted in two successes and one failure.[15] Twenty-four of the 28 missiles checked out by the AMC QA/QC team were used for the ASP. The total results were 17 successes and seven failures.

---

[10]Director's Significant Action Report, Maintenance, 15-19 May 1972.

[11]Director's Significant Action Report, Maintenance, 20-24 March 1972.

[12]Director's Significant Action Report, Maintenance, 6-10 March 1972.

[13]Director's Significant Action Report, Maintenance, 27-31 March 1972.

[14]Director's Significant Action Report, Maintenance, 1-5 May 1972.

[15]Director's Significant Action Report, Maintenance, 15-19 May 1972.

(U) Major General Donley, CG MICOM, departed 22 April 1972 for a one-week visit to USARPAC and EUSA after which he was to report to AMC and DA on the missile situation in Korea.[16] On his return, General Doneley submitted the following recommendations: (1) Dispatch an AMC depot maintenance team by 1 June 1972, and integrate its efforts with the HAWK Maintenance Facility, Korea (HMFK) to overcome current backlog; (2) Add a task order to the FY 1972 HMFK contract. This action would eliminate the backlog by mid-July and allow return of the AMC team in approximately 45 days. USARPAC would have to provide funds by 2 June 1972; (3) Increase the level of the future contract effort to prevent recurrence of backlogs.[17]

(U) General Donely's first recommendation had been anticipated by EUSA. Therefore, to assist in clearing maintenance backlog until permanent civilian augmentation could be provided to the Eighth US Army, a 13-man depot level maintenance team was requested.[18] In April 1972, MICOM staffed this team with selected personnel from Letterkenny Army Depot. However, problems in funding the undertaking delayed the team's departure until 27 May 1972.[19] The AMC depot maintenance team continued to provide assistance to the combined maintenance facility until the end of this fiscal year. Its stay was expected to be extended for an additional 60 days.[20]

(U) In order to detect or preclude future degradation to the defense missile system, DA proposed on 26 May 1972, that AMC provide, on a semi-annual basis, a Maintenance Assistance and Inspection Team (MAIT) type of program to EUSA.[21] AMC's response on 20 June 1972 pointed out the increasing dependence by EUSA on external support. However, in concurring, AMC proceeded to identify a team of 11 AMC personnel and two CONARC personnel. USARPAC and EUSA concurred in the desirability of a semi-annual MAIT visit schedule starting in September-October 1972. However, they recommended a team strength of 16 personnel instead of the 11-man team recommended by AMC.

(U) As this fiscal year came to a close, the missile repair backlog was reduced to zero. The HMFK 100 missile task was scheduled for completion at the end of August 1972 rather than 8 July. This was due to the non-availability of unserviceable assets.[22]

---

[16] Director's Significant Action Report, Maintenance, 24-28 April 1972.

[17] Director's Significant Action Report, Maintenance, 22-26 May 1972.

[18] Director's Significant Action Report, Maintenance, 24-28 April 1972.

[19] Director's Significant Action Report, Maintenance, 22-26 May 1972.

[20] Director's Significant Action Report, Maintenance, 12-16 June 1972.

[21] Director's Significant Action Report, Maintenance, 19-23 June 1972.

[22] Director's Significant Action Report, Maintenance, 26-30 June 1972.

VULCAN Weapon System Overhaul Program.

(U) Certain problems were encountered in meeting the overhaul schedules, and establishing a complete in-house overhaul capability for the VULCAN Air Defense Weapons System (XM163/XM167) at the Red River Army Depot.[23] The FY 1972 program included the XM163 Self-Propelled version only.

(U) Representatives from Red River Army Depot, WECOM, Frankford Arsenal, and AMC Headquarters, participated at a meeting held on 11-12 April 1972 at WECOM to define the pertinent problems and expedite any resolutions. The primary problems discussed were Range Only Radars (RORs), and the checkout procedures for the gun fire control.

(U) RORs were being overhauled by contract with Emtec, the manufacturer, and were mounted on the system at Red River Army Depot. That depot had a final checkout capability for RORs, but fault isolation and repair of the component, when required, was not available.

(U) Astro-Reliability, under contract with WECOM, developed the checkout procedures for the gun-fire control. These were included in the draft depot maintenance work requirement and provided for use of a laser/camera checkout method. After encountering many problems at implementation, Red River Depot personnel concluded that these procedures were not adaptable to depot overhaul. Since Astro-Reliability was no longer in existence, no help could be obtained from that source in resolving these problems. However, certain corrective actions were taken.

(U) Funds in the amount of $113,000 were provided WECOM for the procurement of the required test equipment to give Red River Depot an overhaul capability for ROR. Frankford Arsenal began negotiating with Emtec for the procurement of this equipment. On 23 June 1972 that contract was awarded, and delivery was scheduled for January 1972.[24]

(U) In the meantime, WECOM finalized negotiations with General Electric for the development of checkout procedures and furnishing necessary checkout equipment for this weapons system. The contract was to be awarded on 28 June 1972 in the amount of $125,000. These procedures and equipment were to replace the laser/camera method developed by Astro-Reliability which was not adaptable to depot overhaul.

(U) Approximately 14 employees of the Red River Army Depot would require training on the operation of ROR test equipment after its delivery. This was planned for FY 1973.

---

[23]Director's Significant Action Report, Maintenance, 17-21 April 1972, subj: XM163/XM167 VULCAN Weapon System Overhaul Program.

[24]Director's Significant Action Report, Maintenance, 26-30 June 1976, subj: XM163/XM167 VULCAN Weapon System Overhaul Program.

CHAPTER IX

INTERNATIONAL LOGISTICS*

Introduction

(U) An important aspect of Logistics Support is International Logistics, through which AMC supplies materiel and services to foreign States in pursuance of US political, monetary and defense interests as directed by higher headquarters. AMC International Logistics mission is carried out under various programs, such as: Free World Support, Co-production, Foreign Military Sales, and Secondary Items programs. The significant events in each of these are discussed under their appropriate headings.

General Assessment

(C) A more aggressive Foreign Military Sales (FMS) policy was experienced under the Nixon Doctrine in Fiscal Year 1972. Since 1967, sales of arms to foreign countries had dropped approximately 50%. In 1972, however, the dollar value continued to grow to 140% of the 1971 business, reaching a new high of 1.4 billion. [1] Most of the increase was accounted for by sales of HAWK, TOW, LANCE, helicopters and armored vehicles. TOW was a particularly good seller.

(U) The upward trend was also much in evidence in Grant Aid Funding continuing the 1971 trend that reversed the downward movement begun in 1966. The role of AMC in the success of the Vietnamization Logistics Program had the attention of the highest levels of government.[2] Since timely delivery of quality merchandise is the key to continued success Quality Assurance teams were established, when required, to inspect the equipment furnished under sales agreements before and after delivery as well as to assist the recipient country in deprocessing the materiel. [3]

---

1 Letter AMCPA, General Miley to General Abrams, 11 Jan 73.

2 Memorandum from the Secretary of Defense to the Secretary of the Army, dated 19 Jan 72.

3 Letter AMCQA-P, dated 10 May 72 and letter AMCPA, op. cit.

*All data in this chapter were extracted from the FY 1972 Historical Summary of the Directorate for International Logistics unless otherwise indicated.

Organizational and personnel changes

(U) Effective 15 March 1972, Brigadier General W. C. Magathan, Jr. replaced Brigadier General Arthur W. Kogstad who retired on 31 January 1972, as Director for International Logistics.[4]

(U) The Co-production Management Office was merged with the Review and Status Branch, Military Sales Division, to form the new Co-Production and Analysis Branch[5], Military Sales Division, effective 5 May 1972.

Free World Support

(U) Charged with the responsibility of directing the accomplishment of the Free World Support Program comprising Military Assistance Service Funded (MASF) Grant Aid, and Civilian Aid Programs, the mission of the Free World Support division took new importance as international policies shifted. During Fiscal Year 1972, the US Army offered major items with a total acquisition value of over $604 million. Congressional limitation of $300 million at acquisition value imposed on DOD for Long Supply and Excess (LS&E) materiel program authorization for 1971, was increased to $555 million, thus providing a sufficient cushion to avoid possible crash actions.

Military Assistance

(U) Korean Forces in Vietnam. The Republic of Korea Army, Vietnam (ROKAV) had been supported through the US Army Vietnam for common items, and through the Vietnam MASF program for non-common or MAP peculiar items. As it proved impossible to report to Congressional Committees on materiel furnished to ROKAV through US Army, Vietnam, a MASF program was established for ROKAV.

(C) As anticipated in FY 71, the transfer of materiel from 8th US Army to the Republic of Korea concurrent with the withdrawal of the 8th US Army was virtually complete.

(U) Laos. An increased requirement for approximately 800 G13 parachutes, considered critical to Laos operation, resulted in the use of war reserve stocks to satisfy urgent requirements. Because of this unprogrammed requirement, AVSCOM was directed to procure advance sufficient quantities to meet revised FY 73 requirements of about 30,000 parachutes.

---

4 AMC Special Order 38, 15 Mar 72.

5 CMT 2, AMCPT-SM, 5 May 72, subj: Manpower Authorization Voucher Change.

Two contracts were let on 30 June 1972. Meetings to explore and resolve the parachute problems were proposed with CINCPAC and USARPAC, pending DA concurrence.

(U) Thailand. During 1972, Thailand MASF Program reverted to Military Assistance appropriation funding effective 1 July 1972. Maximum effort was made to obligate all FY 72 and prior year programs before 1 July 1972. By 30 June 1972, a 100% obligational rate had been achieved for the regular MASF and Additional Aid, Thailand (AAT) programs. As of 30 June 1972, the status of Thailand programs were:

a.	Undelivered FY 72 and prior year balances (MASF and AAT)	49.5%
b.	Unobligated FY 72 and prior year balances (MASF and AAT)	0.0
c.	Deviations FY 72 and prior year program (MASF and AAT)	0.5
d.	Undelivered RTVAVF Program	1.6
e.	Unobligated RTVAVF Program	2.6

(U) Turkey. A TOW missile system was programmed for Turkey. The US Army Missile Command will be the coordinator for its deployment and Anniston Army Depot will be the assembly point for shipment. Tentative availability date at Anniston for shipment was 1st Quarter FY 75.

(U) Major equipment deliveries for Turkey amounted to eighteen UH-1H helicopters; thirty-eight M113 armored personnel carriers; ninety-nine M48 90mm and two hundred M48A1 medium tanks; and thirty-three M578 recovery vehicles.

Grant Aid

(C) Spain. Fifty-four M48A1 tanks and twelve M107 175mm self-propelled guns were shipped on schedule under the Base Rights Agreement.

(C) At Spain's request, the shipment of one NIKE-HERCULES battery was accelerated from June to March 1972. After deployment, replacement of required items and calibration by MICOM personnel, Spain accepted the battery in June 1972.

(U) Vietnam. The urgency for delivery of materiel from AMC resources varied greatly during FY 72. At the beginning of the year, Project OUX was the primary project, and contained all the problem items in the program. A slow-down was in effect at that time on CONUS shipments to assure maximum utilization of in-country transfers and theater assets. In late July, two new projects were assigned, Projects 981 and 982, to run concurrently with Project OUX in order to accelerate

245-082 O - 77 - 17

deliveries. Project 981 covered defined items including ammunition and concurrent spare parts, while Project 982 covered dollar lines for secondary items and follow-on repair parts.

(U) Several new projects were generated by the need to accelerate supplies as a result of the North Vietnamese attack of March 1972. Collectively called ENHANCE, these projects aimed to increase the combat capability of RVN forces by supplying major items as well as spare parts and introducing new types of equipment. It is expected that Project ENHANCE will continue indefinitely, dependent upon completion of the Vietnamization program.

Co-Production

(C) As of June 1972, the Army Co-Production program had a foreign country value of $1.6 billion, of which an estimated $607.0 million was spent in the US over the period covered by the Government to Government Agreements. Major items produced by the six countries and NATO are helicopters, tanks, self-propelled howitzers, missile systems, rockets, GP vehicles, rifles, machine guns and armored personnel carriers.

(U) A study was begun to assess the impact of Co-Production in a foreign country. The study, which is entitled "Economic and Sociological Benefits of Co-Production to the Foreign Country," will seek to evaluate and forecast future co-production possibilities from the viewpoint of socio-economic benefits rather than military or logistical advantages.

(U) Another study was initiated to look into instances of unsatisfactory production in Co-Production projects.[6] Co-production project managers were tasked with reporting specified data on each unsatisfactory production occurrence if the effort expended to correct the deficiency exceeded 500 manhours Where the corrective effort did not exceed 50 manhours only the total quantity of such occurrences were to be reported. A preliminary review of responses was underway at year's end.

(U) Republic of China (ROC). The Republic of China's proposals to co-produce additional UH-1H helicopters during 1974 - 1976 and the T53 engine are awaiting US approval.

(C) Efforts to offer ROC unserviceable 2½T truck axles at scrap value for eventual rebuild and use in ROC vehicle co-production programs were abandoned when DA decided to use the axles as Government Furnished Equipment in a new US 2½ ton vehicle contract.

---

6 Letter AMCIL-P dated 2 Sep 71, subj: Unsatisfactory Production Occurrences in Co-Production Projects.

(C) Italy. The Italian Air Force expressed interest in the High Power Acquisition Radar (HIPAR) modification to the NIKE-HERCULES system for incorporation in its own radar system, and requested release of technical data to the Italian electronic firm, Selenia, for study and evaluation. AMC recommended that Italian technical personnel visit General Electric (our prime contractor) for discussions and evaluations of specific data requested. It was anticipated that this action would culminate in the co-production of HIPAR in Italy.

(U) The track for the M113 Armored Personnel Carrier co-produced by Italy was found to have significantly longer wear life (6,000 miles instead of 3,500) than the original design. Technical data for the improved design were released after testing and verification of the improved design and acceptance of a new bushing to match the improved track shoe.

(U) M109 SP Howitzers. After concerted efforts to locate additional US M109 vehicles for the Italian co-production program, and the subsequently rejected AMC recommendations to produce the required vehicles in Italy, an offer was made to Italy to join the US in an unexpected opportunity to obtain M109A1s from new US production.[7] Italy did not respond.

(U) Publication of Co-Production Case History. In January 1972, AMC published a report entitled "Case History of the M113 Armored Personnel Carrier Italy Co-Production Project, Nov 1962 - December 1970." The report provides a review of the first Army coordinated project conducted between the US Government and a foreign government for production of US military materiel in a foreign country.

(U) Iran. The co-production type programs for modernization of Iran's M47 tank fleet to M47M configuration continued. Tests of repair parts and special tooling were developed. Rebuild of the M12 range finder for the M47M was sold to Iran for about $25,000. Special tooling to support the rebuild of fire control equipment was being identified on May 1972.

(U) Japan. By Memorandum of Understanding dated 19 November 1971, Japan and the US agreed to extend the present programs for the production of HAWK and NIKE-HERCULES missiles and HAWK ground sets during Japanese fiscal years 72 and 73.

---

7 Letter AMCIL-P, 28 Mar 72, to Colonel S. Pontieri, Italian Military Attache, Washington.

(U) Republic of Korea (ROK). Between July and October 1971, two Korean Army plans for the conversion and expansion of the ammunition plant in Korea were reviewed and coordinated with DA/OASD/JUSMAG-K/ROK Army/ Frankford Arsenal personnel. Visits were made by ROK personnel to US Government facilities which had excess equipment available for sale and they were to receive orientation on US production processes. The ROK/US Memorandum of Understanding was approved by DOD in March 1972. FMS cases were funded and implemented in the April-June 1972 period to provide for production equipment, tooling, technical data and training to support the program.

(C) Proposed Co-Production of AN/PRC-77 Radio. Early in FY 72, an Advanced Research Projects Agency (ARPA) team went to Korea to determine the feasibility of co-producing certain US items. The Koreans showed considerable interest in manufacturing the AN/PRC-77 radio with US assistance. An initial joint feasibility study indicated that manufacture of the AN/PRC-77 in Korea would be beneficial. A solicitation package to provide US industrial support for such a program was prepared, coordinated with ECOM and DA and submitted to JUSMAG-K for review and approval. In late June 1972, the joint US/ROK plan for establishing the in-country capability was reviewed to form the basis for further negotiations early in FY 73.

(C) Proposed Co-Production of 2½ ton trucks. Following the conclusion in 1971 that a Korean capability existed for the manufacture of 2½T trucks, a TACOM technical team was sent in 1972 to investigate in-country capabilities, manufacturing processes, and economic feasibility of the 2½ ton truck production in Korea. The study was expected to be completed in FY 73.

(U) Norway. Because of malfunctions, all lots of US M72 Light Antitank Weapons (LAW) were suspended from issue except for emergency combat use. Norway, which had been producing LAW for its own use and third country sales under a Government to Government Agreement, was furnished, through MUCOM, all applicable information regarding malfunction cause, incidence rates and planned fix. During the last quarter of FY 72, Norwegian prime contractor representatives were briefed at Picatinny Arsenal on the status of current US renovation and production programs.

Foreign Military Sales

(C) In FY 72, the Army Foreign Military Sales program totaled $2,613.9 billion of which $655.9 represented new sales made in FY 72. Worldwide deliveries against the Army Foreign Military Sales Program totaled 386.5 million in 1972. Major equipment included in this program were helicopters, REDEYE and TOW missiles, personnel carriers, fuzes, howitzers, recovery vehicles, ammunition, communications equipment and repair parts. Countries making major purchases during FY 72 were:

Country	(Million)
Australia	54.7
Brazil	16.1
Canada	13.4
China	24.0
Germany	98.9
Greece	10.5
Iran	238.0
Israel	32.3
Italy	21.8
Korea	11.7
Morocco	10.5
NAMSA	24.1
Netherlands	17.8
Norway	14.3
Saudi Arabia	9.5
Spain	11.6
Switzerland	10.2

(U) In response to DA request, listings of new and improved items in US inventories (Standard A) and expected to be available within the next five years were furnished DA.[8] DA plans to sponsor briefing teams to acquaint eligible foreign governments with equipment available for acquisition.

(U) FY 72 FMS Close-out program. The FY 72 FMS case close-out program, established in 1971, resulted in the closing out of over 70% of the FY 1972 objective. In addition, AMC closed out 797 cases not included in the FMS Close-out program, for a total of 1,517 cases valued at $290 million.

(C) Ecuador. Military sales to Ecuador were suspended on 9 February 1971.[9]

---

8 Ltr, AMCIL-M/CA, dated 20 Jul 72, subj: Foreign Military Sales.

9 DA message DCSLOG-MS-SB2 dated 9 Feb 1971.

(U) Germany. The Pershing Conversion program, begun in 1969 with the purchase by FRG of equipment and repair to convert two German wings of Pershing to PERSHING 1A, was successfully completed in October 1971 with the turnover of the equipment for the 2nd wing. The total value of the purchase was $104 million.

(FOUO) India. On 2 December 1971, DA suspended the supply of ammunition and its components as well as machinery used in the manufacture of ammunition on FMS cases for India. On 3 December 1971, supply of all materiel to India on the FMS program was suspended. The suspension was still in effect as of 30 June 1972. Grant Aid program was not effected.

(C) Israel. Military sales to Israel, totalling $113.2 million, involved the following equipment:

Quantity	Item
3	Gun, SP, M107, 157mm
6	Recovery vehicle, M578
12	Command Post Carriers, M577A1
45	Ammo Carrier, M548
150	Personnel Carrier, M113
100	Tank, M48A1
150	Tank, M60A1
1 Battalion	Hawk Missile System
50	Hawk Missiles

(C) Japan. On 21 June 1972, and following Japan's interest in acquiring US Army NIKE HERCULES and HAWK equipment located in Okinawa, the Mutual Defense Assistance Office, Japan, received letters of offer for the HAWK and NIKE HERCULES valued at $11.3 million and $9.0 million, respectively. The missile systems, along with repair parts, owned by the US Army on Okinawa were expected to be transferred by May 1973.

(FOUO) Jordan. DOD MAP order for $11.4 million was received in September 1971. Major items were 120 M113A1 Armored Personnel Carriers and 35 M125A1 SP carriers to be mounted with 81mm mortars. No problems were expected.

(C) Pakistan. Effective 26 April 1971, DA release was required on a case basis for shipments from depot stocks of end items, ammunition and repair parts for lethal end items to the Government of Pakistan. [10] Subsequently, all depot stock shipments, new requisitions or letters of offer were suspended.

(C) On 12 November 1971, DA cancelled requisitions covering items on procurement for direct shipment to Pakistan's freight forwarder. [11] With the exception of 300 Armored Personnel Carriers, M113A1, all materiel was to be utilized for other known US FMS/MAP requirements or shipped to depot stocks to be held. Suspension was still in effect on 30 June 1972.

FMS Management Reviews

(U) A total of 24 country program reviews were completed in FY 72, of which 5 were conducted with Japan, Italy, Germany, NATO Maintenance Supply Agency, and the NATO Hawk Production and Logistics Organization. The remaining 19 reviews were either conducted in CONUS, or coordinated by correspondence.

Secondary Items

(U) The Secondary Items Support office is responsible for the management of Supply Support Arrangements (SSA) with friendly foreign governments and staff coordination for management of all secondary items and repair parts.

(U) The Supply Support Arrangement program covered seventeen countries and one international organization during 1972 at a total volume since its inception in 1972 of approximately $90.7 million. Sales during FY 72 were approximately $31.4 million. Significant actions by country follow:

Country	Value
Australia	6.8
Austria	3.7
Belgium	.6
Canada	10.9
Denmark	4.7
Germany	48.6
Iran	13.0

10 DA Message DCSLOG-FMS-SB2 dtd 26 Apr 71 (C-NOFORN).

11 DA Message DALO-ILS-B dtd 12 Nov 71 (C-NOFORN).

Country	Value
Israel	4.5
Italy	8.3
New Zealand	1.1
Norway	5.5
Saudi Arabia	7.4
Spain	3.8
UK	1.2

Supportability

(U) The supportability program continued in effect through FY 72 with added emphasis on ASD objective to transfer the support role for MAP peculiar end items to industry wherever possible. All commodity commands continued to review items in an effort to identify additional candidate items for phase out. Approximately 1250 supportability statements were distributed as of 30 June 1972.

CHAPTER X

QUALITY ASSURANCE

Introduction

(U) The Directorate for Quality Assurance made positive studies in all three facets of its military interrelationships in FY 1972. From Department of Army above, the directorate received increased responsibilities in the Army's part of both the DOD Quality and Reliability Assurance Career Program and the DOD Quality Assurance Program. From within, the directorate attempted to improve Reliability and Maintainability (RAM) input to design, to upgrade RAM for fielded systems, and to enhance component reliability. Finally, for its MSC's the directorate not only completed its work in achieving an AMC standard commodity command (SCC) product assurance structure, but it also integrated the depot's ammunition surveillance and quality control functions into their Directorates for Quality Assurance Assurance.

Organization and Mission

(U) The most significant FY 1972 organizational achievement was the completion of the SCC structure for product assurance. This feat involved the establishment of divisions for Reliability and Maintainability (RAM), Systems Performance Assessment, and Plans and Analysis. The creation of these divisions concentrated within the respective directorates all of those product assurance skills necessary to react to the appropriate Army life cycle actions.

(U) Mission changes largely turned around a new DOD directive on product assurance. Issued in February 1972, this directive set forth in a single document all of the basic policies and objectives for the DOD Quality Assurance System. The directive assigned the directorate total responsibility for implementing and complying with DA quality and reliability assurance policies.

Major Action Areas

System Performance Assessment

(U) On 13 April 1972, AMC published AMCR 702-15, Reliability Improvement of Selected Equipment (RISE). The objective of this regulation was to improve the RAM of operational systems in order to reduce their life cycle support costs. This improvement was to be four-phased: first, identification of those components

contributing the most to RAM degradation and to excessive maintenance support costs; second, subjection of those identified parts to engineering analysis to determine the amount of reliability improvement possible; third, initiation of any improvements found to be both feasible by phase two and cost-effective; and fourth, assessment of RAM performance and costs of maintenance support to determine the actual degree of improvement. During FY 1972, the seven AMC commodity commands began action to implement 57 RISE product improvement proposals.

Quality Engineering

(U) Materiel Testing Technology (MTT). The directorate took two actions to improve materiel testing technology (MTT) in FY 1972. First, it helped to establish the Army Materials and Mechanics Research Center (AMMRC) as the lead laboratory for MTT and non-destructive testing (NDT). Second, it designated the Quality Engineering Division Chiefs from the MSC's as members of the MTT Committee. This latter step gave increased visibility and emphasis to the Command's MTT program.

(U) MTT funding rose from $1.65 million in FY 1971 to $1.92 million in FY 1972. Some of the MTT developments that this increased funding stimulated included a magnetic-recording borescope, a laser gun tube bend measurement system, and a closed-circuit television system for the visual inspection of gun bore surfaces. The funds also enabled researchers to evaluate Automatic X and Gamma Radiation Detection for the height of munitions fill.

(U) Shelf-life items (SLI's). AMC had to meet the provisions of a new DA regulation on Shelf-life items. Published 24 November 1971, and effective 1 January 1972, this regulation was AR 700-89, Identification, Control and Utilization of Shelf-life items. This AR limited the assignment of shelf-life codes to items with shelf-lives of less than 60 months. For other items, the AR assigned non-deteriorative shelf-life codes. This single step cut the number and dollar value of SLI's dramatically, as the following table illustrates:

Qtr FY 72	Number of Army-Managed FSN's*	Dollar Value of Inventory
3rd	15,776	$219,028,060.82
4th	2,250	100,182,559.95
Total Reductions	13,526	$118,845,500.87

*Federal Stock Numbers

Statistical Engineering

(U) By FY 1972, AMC believed that some measure had to be taken to satisfy the growing need for the effective application of statistical techniques to systems development and product assurance. The measure taken was the initiation of a statistical engineering program. This program had four general study areas, to include designs of experiments, of statistical advances in product assurance, and of Bayesian statistics life characteristics of complex systems.

(U) AMC addressed the program with the cooperation of two of its subordinate elements, the Army Materiel Systems Analysis Agency (AMSAA) and the Army Management Engineering Training Agency (AMETA) AMSAA's role was to conduct the studies in a manner calculated to produce experimental techniques. The techniques would then be evaluated over a five-year span at the appropriate MSC's, with AMETA maintaining necessary liaison.

(U) AMC hoped to evolve several statistical engineering technique candidates from these evaluations. To fulfill AMC's hopes, the MSC's had not only to select the most useful of the techniques from practice, but also to provide detailed and workable procedures for their selections. AMC could then evaluate their actions and make a decision about which techniques to employ.

Procurement Quality Assurance

(U) Procurement quality assurance received a great boost from the Joint Commanders' Panel on Contract Administration. On 24 March 1971, this panel released a report which made 21 specific procurement quality assurance improvement recommendations. These recommendations covered such subjects as prime contractor control of vendors, specification development process, acceptance finality, and the DOD Procurement Quality Assurance Program. By the end of FY 1972, the directorate had either instituted, or had begun, the implementation of all 21 of the improvements.

(U) On another level, AMC attempted to improve its relations with the Defense Contract Administration Services (DCAS). Towards this end, the CG, AMC, and the Director, Defense Supply Agency (DSA), met in January 1972. This meeting had two key results. The first was a series of AMC recommendations, given at DCAS's request, to improve DCAS quality assurance operations. The second result was the establishment of an informal DAS quality assurance committee. The DCAS chaired the committee, and each service provided high-level representatives. The Director of Quality Assurance, AMC, represented AMC on the committee.

(U) The informal committee's work bore a close relationship to the efforts of another major services/DCAS program. Called the Procurement Quality Assurance Program (PQAP), this effort was an attempt to develop common services procedures for procurement quality assurance. The program's work continued on into FY 1965.

(U) AMC also had success in one of its main procurement quality assurance problems, the reduction of unissuable new materiel. During FY 1972, thanks to high emphasis, AMC reduced the cost amount of such materiel from $498 million to $172 million. The main means of this reduction was a heavy emphasis on quality and reliability through the production stage and the succeeding repair and retrofit stages.

Depot Quality Assurance

(U) Coding. To maintain a high level of depot quality assurance, DA set forth a program for the rapid disposition of materiel classified as uneconomically reparable. At the core of DA's program were those serviceable, needed component parts or subassemblies on major end items. These parts were classified as condition code H. When they were to be saved, DA classified the end item as condition code P until their removal was effected.

(U) The directorate was responsible for the effective implementation of the codes for DA's program. This responsibility meant the development of Army-wide procedures for coding, the instruction of coding inspectors, and the validation of coded materiel. Program implementation was set for 1 November 1972.

(U) COSIS. The directorate was also heavily involved in procedural improvements in depot quality assurance. Two actions were of note in this area. One was the completion of a DA, directorate-assisted study of the Care of Supplies in Storage (COSIS) Program. The other was the development, with AMC Logistics Systems Support Agency (LSSA) help, of a Direct Support/General Support (DS/GS) Maintenance Quality Assurance Manual.

(U) Both actions yielded positive results. The COSIS study indicated a need to revise current regulations in order to provide a more realistic storage posture. The manual came to serve as a practical guide for those quality control concepts, methods and techniques suitable for field maintenance support operations.

Value Engineering

(U) The Command exceeded two out of its three major value engineering (VE) objectives in FY 1972, as these figures show:

VE Mission Category	Goal	Achievement
Receipt of Contractor VECP's*	625	600
In-house VEP's**	1,010	1,365
VE Cost Reduction Savings	$59,340,000	$102,515,800

(U) The VEP's accomplished above were 35 percent above the goal, and the cost reduction was 73 percent above. The VECP's fell below -96 percent of their objective primarily because of the US Army Aviation Systems Command (AVSCOM), which achieved only 13 VECP's against a goal of 50. AVSCOM's performance seems to be due to an undermanned VE Division.[1]

---

1 The bulk of the material above came from: Directorate for Quality Assurance, Annual Historical Summary, FY 72.

*Value Engineering Change Proposals
**Value Engineering Proposals

CHAPTER XI

HIGHLIGHTS AND TRENDS

Major Emphasis

(U) For the Army and AMC, FY 1972 was a year of transition. It was the year of withdrawal from Vietnam. By the end of the year, only two U.S. Army maneuver battalions remained of approximately 49,000 troops still in Vietnam. AMC's mission of support to the theater was ending. However, the redistribution of materiel from the war zone was a major logistics effort during FY 1972. Before equipment excessed in the theater could be redistributed, it needed to be classified, identified as to condition, and processed. This was done as a cooperative effort. Instructions were prepared by the United States Army, Pacific, in conjunction with the Department of the Army and the Army Materiel Command. Of the materiel processed, about 19 percent became available for immediate release and 67 percent was deemed to be repairable within U.S. Army, Vietnam maintenance facilities. Another 12 percent was judged to require extensive repair and about 1 percent was disposed. In FY 1972, $42 million of equipment was given to the Vietnamese armed forces and more than $100 million was shipped for reconditioning at Pacific maintenance facilities and ultimately to meet various requirements including Vietnamization.[1]

(U) Originally, it was intended that only equipment that became available resulting from United States withdrawal be used for Vietnamization. When the Army was asked to speed up delivery of equipment in July 1971, requirements were placed not only upon facilities in Okinawa, Taiwan, and Japan, but also upon United States depots for delivery of items not available in the Pacific. In all, some $338 million in major items were turned over to Vietnam forces. Of this total, approximately $144 million came from sources in the United States.[2]

(U) If the FY 1972 was a year of transition from war to peace, it was also a year that saw continuing efforts that had become widely known as the "Logistics Offensive." The "Logistics Offensive" has been in operation since 1969 and was aimed at achieving a high state of logistics readiness Army-wide. The "Logistics Offensive" combined many innovative programs in a coordinated effort to align the total logistics effort under a vastly improved logistics management system. Involved in the

[1] William Gardner Bell, Department of the Army Historical Summary - FY 1972, Center of Military History, Washington, D. C., 1974, pp. 38-39.

[2] Ibid., pp. 39-40.

process were such programs as SALS (Standard Army Logistics System) which employed the ALPHA (AMC Logistics Program Hardcore Automated) and SPEEDEX (System Project for Electronics Equipment at Depots Extended). ALPHA would standardize the automatic data processing equipment and programs to improve management at NICP's. SPEEDEX would do the same thing at the depots. There were related SALS standardization actions also applied at CONUS and oversea commands and at division level. Also considered part of SALS would be other programs to improve logistics management including modernization of the ammunition production base and other materiel acquisition program improvement systems such as PROMAP (Program for the Refinement of the Materiel Acquisition Process) and IMPACT (Improved Management of Procurement and Contracting Techniques). PROMAP sought to upgrade the quality of the managers of the materiel acquisition machinery primarily through improved selection processes and intensified training programs. IMPACT continued the training efforts of the PROMAP program, which was terminated on 31 December 1970, but placed major emphasis upon upgraded methods for contracting and procurement. IMPACT was designed as a long range program to improve the AMC materiel acquisition process.[3]

Resources

(U) In FY 1972 increases in the RDT&E and OMA funding more than offset reduction in PEMA, ASF and other programs. The total program was $9,288 billions, an increase of 2 percent over FY 1971 but compared with the peak expense year of the Vietnam war, 1969, the AMC program was down by almost 40 percent. (See Chapter II.)

(U) Actual civilian strength of AMC declined from 127,730 at the end of FY 1971 to 124,020 at the end of FY 1972. The military authorization declined from 14,106 to 12,354 during the fiscal year. The reductions were affected by base and activity closures and consolidations. The reductions in military personnel caused consternation among AMC commanders who foresaw a declining training base for future logistics officers. The scarcity of logistics officers had plagued AMC throughout the crisis periods during the Vietnam war.

(U) The number of Class II activities increased by 1 to 103 during FY 1972 with Class II installations remaining at 83. A reduction in military acreage from 4,783,337 to 4,489,565 resulted in FY 1972. Building space decreased from 237,471,502 to 233,130,000 square feet. The value of AMC real property increased during the year from $3,555,000,000 to $3,583,829,000 during FY 1972. (See Chapter II.)

---

[3] LTG Joseph M. Heiser, Jr. and Michael Dugan, "The Logistics Five Year Plan, 1971-1976," thirteenth in a series entitled "The Logistics Offensive," Army Logistician, March-April 1972, pp. 18-23.

Materiel Readiness

(U) Through cooperation with major Army commanders, during FY 1972, AMC established or continued programs designed to improve unit EOH (equipment on hand) and maintain unit ALO (assigned levels of authorization). Also, various actions were taken in the areas of technical assistance and exceptional management of AMC repair parts support. Selected items involved included the M551 Armored Reconnaissance vehicle, the M110 Self Propelled 8-Inch Howitzer, the M561 Gama Goat, and the M102 105mm Howitzer.

(U) The Direct Support System (DSS) which had been initiated in Europe and Korea in 1971 and extended to Vietnam in 1972, was evaluated in FY 1972 and adjudged to be extremely effective. It was found that the resupply of units could be performed from CONUS in the same length of time as from theater depots. The DSS system was introduced into USAREUR with two divisional maintenance oversea supply units participating. The system was expanded in USAREUR and by 1 July 1972, 85 units of a planned total of 116 units were participating in the system. As a result, overall pipelines were reduced by half and it was judged that DSS gave flexibility, visibility and control to the supply and maintenance missions.

AMC Technical Assistance Program

(U) In March 1971, AMC undertook a reorientation of its technical assistance program. The technical assistance program involved assisting major Army field commanders in solving particular Army materiel readiness problems. Included were determining deficiencies in their supply and maintenance capabilities, recommending improvements in supply operations and maintenance services, assisting commanders in the conduct of training of personnel associated with materiel readiness, assisting direct and general support activities, and assistance with in-storage maintenance care and preservation. The AMC Comptroller had been directed to conduct a review of the technical assistance program and briefed General Miley in April 1972. General Hallgren (BG H. E. Hallgren, Comptroller, AMC) advised the AMC Commander that the AMC technical assistance was a system wherein too many people were putting out fires and chasing parts, but they were providing intelligence feedback and technical assistance and advice.[4]

[4] (1) CAMERA FEEDBACK (16-72) "Review of Technical Assistance Program," Review and Analysis Division, Comptroller, HQ AMC, 4 April 1972, pp. 9 & 13; (2) MFR, AMCCP-RP, Subject: Command Management Review and Analysis (CAMERA) of the AMC Technical Assistance Program, 13 April 1972.

(U) The resources applied to the technical assistance program from FY 1969 to FY 1972 decreased from $43.3 million to $38.7 million reflecting the phasedown of the Vietnam war; however, the amount was still considerable. There were some 1250 technical assistance people in the field along with existing or planned logistic assistance offices. The reorientation that began in March 1972 was aimed at providing central control of the CONUS/Europe/Pacific technical assistance program at HQ AMC level with the primary objectives of improving control and efficiency, reducing the number of AMC people involved, and shifting emphasis of the program from customer assistance to an increase in intelligence collection.[5]

(U) General Hallgren informed General Miley that four steps were being taken to accomplish the three objectives. Separate AMC major subordinate command field offices were in the process of elimination. A proposal to establish CONUS logistic assistance offices had been approved by AMC and concurred in by CONARC. A single AMCR covering the overall AMC logistics assistance program had been prepared. DCSLOG had approved a change to regulations placing operational control of technical assistance people in the field with AMC, instead of the using command. Directing attention to the objective of reducing AMC people involved in technical assistance, General Hallgren reported the findings of a survey team charged by General Miley to assess the situation in USAREUR and USARPAC. The survey team chief reported that all AMC personnel in both theaters were performing tasks related to the AMC mission and that no major changes were required.[6]

(U) There were certain other factors resisting reduction as well as factors contributing to reduction of personnel. Contributing to reduction was an aging work force caused by previous personnel cutbacks that placed 46% of AMC technical assistance people above age 50 and looking toward possible retirement. In conjunction with this was a declining requirement for technical assistance. A factor resisting personnel reductions was the fact that the previous September, AMC advised the major subordinate commands regarding plans to provide sufficient supply personnel overseas to assure customer satisfaction and improve supply operations. Increasing the number of people overseas would also involve an increase in the rotation base to support the additional people. The Comptroller review also found that there was a plan to limit oversea tours of technical assistance people to three years instead of five to allow for more frequent retraining. This would further cause increases in the rotation base. AMC was in the frustrating position of calling for reductions at the same time it was initiating programs resisting reductions.[7]

---

[5] Ibid., pp. 14-19.

[6] Ibid., pp. 20-23.

[7] Ibid., pp. 25-31.

(U) The Comptroller concluded, however, that steps being taken when fully implemented; could improve the control and efficiency of logistics assistance; could identify what AMC people in Europe and the Pacific were doing; and could, by sample data collection, provide AMC with quantified historical analyses of the performance of selected AMC equipment in the field.

Research and Development

(U) Policy management in the research and development area changed little in FY 1972 from FY 1971. Funding support remained the same and the Vietnam draw-down had little effect upon the activities of AMC directorate for Research, Development, and Engineering. Some individual programs did undergo significant changes. For example, the biological weapons development program ended when the President ordered the production of biological weapons and toxics stopped and existing stocks of such materials destroyed. Also during the year, AMC began placing more emphasis upon nuclear programs, anti-pollution, research, vehicle armor to counter increasingly effective anti-tank weapons, and test and evaluation to heighten the effectiveness of all AMC products.

Major Weapons System Reorientation and Redirection

MBT 70/XM803 Tank

(C) At the beginning of the year, the MBT/XM803 Tank program was experiencing problems with the test schedule and the KE round. In the testing area, completion of the Engineering Test/Engineering Service Test, originally scheduled for September 1968, was delayed by six years and planned for 1974. Fundamental questions concerning what the test program was going to be and how it would be accomplished was still to be resolved. When the tests were to be conducted depended upon continued Congressional approval and funding. The KE round was a requirement in the draft XM803 qualitative materiel requirement (QMR). Throughout the development phase of the round, or since 1966, metal parts breakup problems had been encountered. A history of successes and failures with the round suggested that uncertainty existed in the design approach and in 1971 the Ballistics Research Laboratory at Aberdeen Proving Ground expressed a lack of confidence that the proposed design would provide the required level of reliability. In addition to the specific problems being addressed by AMC, the XM803 tank program met opposition in Congress and by mid-FY 1972, the program was terminated. The cost of the tank, which the Congress believed was too sophisticated was the primary reason. Details of the XM803 termination are discussed in Chapter V, Part I, Project Management.[8]

[8](1) CAMERA FEEDBACK, 4-72 MBT/XM803, Review and Analysis Division, Comptroller, HQ AMC, 3 September 1971, pp. 7-9, 17-21; (2) MFR, AMCCP-RP, Subject: Command Management Review and Analysis (CAMERA of the XM803, Main Battle Tank (U) (CAMERA NO. 4-72), 14 September 1971, Signed: Hal E. Hallgren, BG, USA, Comptroller.

AH-56 Cheyenne Helicopter

(U) FY 1972 was also a bad year for the AH-56 Cheyenne Helicopter with its development contract being terminated. As with the XM803 Main Battle Tank, the AH-56 Cheyenne proved to have a longer development period and was much more costly than predicted. Both the XM803 and the AH-56 suffered because of changing battle scenarious, changes in the state-of-the-art, conflict with an unsympathetic Congress, increasing costs, and unrealistic cost estimates. The Cheyenne was also in conflict with other services. Ultimately, the Advanced Aerial Weapons System, Cheyenne AH-56 was terminated and the Project Manager's Office was redesignated as the PM, Advanced Attack Helicopter, effective 1 June 1972. (For details, see Chapter V, Part I, Project Management.)

International Logistics

(U) During FY 1972, the dollar value of total AMC materiel and services delivered decreased by $1 billion. During this same period, the international logistics portion increased by approximately $300,000. The international logistics percentage of materiel and services delivered increased 28 percent in FY 1972. Based upon existing and projected programs, an international logistics program increase of 33 percent in FY 1973 was looked upon as a possibility. And the new program combined with prior year undelivered programs grew from approximately $4.4 billion in FY 1971 to approximately $5.0 billion in FY 1972. The total international logistics program was approaching a size equal to one third of AMC's total business.[9]

(U) During FY 1972, 7,186 discrepancy reports (complaints) were received in AMC totalling $10.5 million. This represented a decline in number from 10,226 complaints received in FY 1971 but an increase in dollar value from $9.9 million. In FY 1972, over one half of all the complaints pertained to the wrong quantity shipped. Two other major categories of complaints had to do with financial problems and wrong materiel. The fault for the discrepancies could not be readily or easily identified because of inadequate records at most depots and major subordinate commands. AMC was looking for ways for reducing the number of discrepancies. AMC was also looking for ways of reducing the difference between international logistics operating costs and international logistics reimbursements. The difference between expenses and reimbursements for MICOM, MUCOM, and TACOM during FY 1972 amounted to more than $2.5 million. One of the faults in the existing AMC international logistics program was that there was no procedure in operation that permitted visibility of the program as a complete and separate activity.

[9] CAMERA FEEDBACK, 15-73, International Logistics, Review and Analysis Division, Comptroller, HQ, USAMC, 14 May 1973, p. 13, 16.

There was no AMC management system in force that provided or required proper identification of international logistics costs and reimbursements. International logistics was an increasing program in FY 1972, and AMC was looking for ways to better manage the expansion.[10]

Status of AMC Goals and Objectives

(U) A total of 111 objectives aiming at the improvement of AMC operations and management were established for FY 1975. When the AMC Comptroller addressed AMC's accomplishments regarding these goals in mid-1972, he combined and categorized these 111 into 8 major goals as follows: improve command safety environment; eliminate or reduce environmental pollution; modernize and improve AMC facilities and equipment; improve quality, effectiveness and morale of employees; upgrade quality and reliability of Army materiel; improve management of men, money and materiel; improve materiel acquisition; and provide logistics management and support in a timely and effective manner.[11]

(U) Regarding the goal and objectives, the Comptroller found that the structure included good goals and objectives and that AMC was doing well on most of them but that the current 111 objectives included trivia, and some with no target dates or milestones. He also discovered that several major objectives which were subjects of concern were not given adequate visibility and emphasis and that, in fact, few directors appeared to be using and reviewing goals and objectives as management tools. However, he did find that 60 percent of the objectives of the FY 1972 goals were on target.[12]

(U) Specifically, in the mission and mission support areas, the improvement of command safety and environment was given a rating of excellent. In the anti-pollution area, AMC was making progress in both areas of reducing engine emissions below State and Federal standards and of abatement projects at facilities. Concerning the modernization and improvement of AMC facilities and equipment, AMC realized that the production base was in need of modernization which involved upgrading of necessary plants and facilities and closing others no longer required or of marginal or less use. AMC planners viewed this as a long range program that also meant the adaptation of new technologies.[13]

---

[10] Ibid., pp. 54-58, 68-69, 77.

[11] CAMERA FEEDBACK, 12-72, "AMC Goals and Program Objectives," Review and Analysis Division, HQ, USAMC Comptroller, 29 Dec 72, p. 6.

[12] Ibid., p. 9.

[13] Ibid., pp. 10-17.

(U) Regarding the upgrading of quality and reliability of material, which was extremely difficult to guage, the Comptroller could do little more than point to programs being conducted at the various AMC commands and installations. He noted that programs and structures at the AMC installations revealed little regarding the quality of materiel in the hands of the user or under development, or what AMC was doing to improve quality. He foresaw a need for more visibility of the status of equipment reliability, or either a trend or periodic basis indicating what "fixes" were being achieved.[14]

(U) Regarding the improvement of materiel acquisition, a major goal for several years, indications were that AMC performance was at the highest level since 1965. Production delinquencies were at lower rates than in the past, and value engineering change proposals from all sources were above targets. The research and development technical objectives rate of achievement was improving; however, it was also noted that there were insufficient measures of progress in the development and testing areas to make a sound judgement in these areas of materiel acquisition.[15]

(U) The Comptroller reported several achievements regarding AMC efforts to provide logistics management and support in a timely effective manner. There was a strong improving trend in the timeliness of logistics support and there were some indications of improved effectiveness. For example, the Direct Support System and economic airlift was getting supplies to troops faster and real time improvements in the processing of requisitions were continuing. As an indicator of improved effectiveness, inventory accuracy was improving and modification work orders were declining. Also, the ADP system and stock redistribution plan actions were proceeding with increasing potential future benefits. On the minus side, it was noted that the objectives did not address the logistics management problem of high and rising percentages of inventory in excess and retention stocks which now stood at 53 percent of the AMC wholesale stock fund. It was recognized that the sheer physical volume of such stocks in the depot system was adding recurring costs, diverting energies from current support jobs, and increasing AMC's total facilities costs.[16]

(U) Directed actions resulting from the assessment of achievements of the AMC goals called for: facility planning actions to identify depots for standby and excessing; modernization and improvement at AMC facilities and equipment; and a program at AMMO base modernization.[17]

---

[14] Ibid., pp. 22-23.

[15] Ibid., pp. 28-29.

[16] Ibid., pp. 30-31.

[17] MFR, AMCCP-RA, 12 Jan 72, Subject: Review of AMC Goals and Program Objectives - (CAMERA Presentation No. 12-72), signed William O. Harris, Deputy Comptroller.

U.S. ARMY MATERIEL COMMAND

SEPTEMBER 1971

COMMANDING GENERAL	GENERAL H A MILEY Jr	(OX 59154)
DEPUTY COMMANDING GENERAL	LTG W W VAUGHAN	(OX 59006)
DEPUTY FOR LABORATORIES	DR R B DILLAWAY	(OX 53596)
DEPUTY CG FOR MATERIEL ACQUISITION	MG J R GUTHRIE	(OX 55217)
DEPUTY CG FOR LOGISTIC SUPPORT	MG J G KALERGIS	(OX 54892)
CHIEF OF STAFF	MG C T HORNER Jr	(OX 59105)
DEP CHIEF OF STAFF & SECY OF THE GEN STAFF	COL O J HARRISON	(OX 59576)
COMMAND SERGEANT MAJOR	CSM D E TENNOW	(OX 76764)

HEADQUARTERS

COMPTROLLER
BG H E HALLGREN
PROGRAMS BUDGETS FUND ALLOCATIONS FINANCIAL CONTROLS REVIEW AND ANALYSIS SYSTEM COST REDUCTION SYSTEMS ANALYSIS COST ANALYSIS AND COMMAND OBJECTIVES
OX 77897

DIRECTORATE FOR PERSONNEL TRAINING AND FORCE DEVELOPMENT
BG W J WHELAN
MILITARY AND CIVILIAN PERSONNEL MANAGEMENT MANPOWER TRAINING AND ORGANIZATION AND MISSION PLANS
OX 9128

DIRECTORATE FOR PLANS AND ANALYSIS
LTC R L MOORE
COMMAND PLANNING SYSTEMS ANALYSIS AND STUDIES CONTROL
OX 50192

DIRECTORATE FOR MANAGEMENT INFORMATION SYSTEMS
MR J C GILBERT
CONCEPTS OBJECTIVES POLICIES PLANS PROJECTS AND PROGRAMS RELATING TO AUTOMATIC DATA PROCESSING AND MANAGEMENT INFORMATION SYSTEMS
OX 76600

DIRECTORATE FOR INSTALLATIONS AND SSERVICES
COL C YOUNG
MASTER PLANNING REAL ESTATE CONSTRUCTION REPAIRS AND UTILITIES FAMILY HOUSING COMMUNICATIONS ELECTRONICS EQUIPMENT MANAGEMENT SUPPORT SERVICES
OX 5486

DIRECTORATE FOR QUALITY ASSURANCE
MR S J LORBER
TOTAL QUALITY SYST M FOR AMC INTEGRATING METROLOGY CALIBRATION RELIABILITY PRODUCT TESTING QUALITY CONTROL PRODUCT INSPECTION AND VALUE ENGINEERING
OX 7907

DIRECTORATE FOR RESEARCH DEVELOPMENT AND ENGINEERING
BG M E GATES
RESEARCH DEVELOPMENT TEST AND EVALUATION TECHNICAL INTELLIGENCE AND PRODUCT AND PRODUCTION ENGINEERING
OX 7477

DIRECTORATE FOR REQUIREMENTS AND PROCUREMENT
BG F A HINRICHS
LOGISTICS MANAGEMENT INCLUDING REQUIREMENTS DETERMINATION BUDGETING PROGRAMING REBUILD AND DISPOSAL DIRECTION AND DISTRIBUTION MANAGEMENT PROCUREMENT AND PRODUCTION SMALL BUSINESS AND INDUSTRIAL READINESS PLANNING
OX 5774

DIRECTORATE FOR DISTRIBUTION AND TRANSPORTATION
MG H R HIGGINS
STOCK CONTROL CONTAINERIZATION STORAGE PACKAGING DISTRIBUTION AND TRANSPORTATION
OX 50197

DIRECTORATE FOR INTERNATIONAL LOGISTICS
BG A W KOGSTAD
POLICIES PROGRAM GOALS AND OBJECTIVES FOR ALL INTERNATIONAL LOGISTICS PROGRAMS
OX 54500

DIRECTORATE FOR MAINTENANCE
BG E J D AMBROSIO
AMC MATERIEL MAINTENANCE ACTIVITIES OX 50601

DIRECTORATE FOR LOGISTIC OPERATIONS
COL R L HALL
CONTINGENCY MOBILIZATION EMERGENCY PLANNING TROOP STATIONING LOGISTIC ASSISTANCE AND LIAISON ACTIVITIES
OX 5470

COST & ECONOMIC INFORMATION OFFICE
COL D A GRUENTHER
OX 7718

EQUAL EMPLOYMENT OPPORTUNITY OFFICER
MR S S SCHWARTZ
X 59110

SURVEILLANCE TARGET ACQUISITION AND NIGHT OBSERVATION (STANO) AND SELECTED SYSTEMS OFFICE
COL J H W INSKEEP
OX 7491

ENGINEERING ANALYSIS OFFICE
MR L M TAYLOR (A)
OX 51270

SPECIAL ASSISTANTS

PROJECT MANAGEMENT	COL C E MILES JR	OX 57705
TECHNICAL RELATIONS ADVISOR NUCLEAR CHEMICAL AND BIOLOGICAL AFFAIRS	MR H HANDLER	OX 59582
FOD OFFICE	MAJ H E WARREN JR	OX 57530
CONGRESSIONAL AFFAIRS	MR P CYR	OX 50505
JOINT ACTIVITIES COORDINATOR	COL J A THOMAS	OX 73373
DEPOTS	COL R A READE	OX 75569
FIELD SUPPORT	MR L E ANDERSON	OX 705 9

AVIATION OFFICE
COL W B DYER
OX 1748

INFORMATION OFFICER
COL R J BERENS
OX 78191

HEADQUARTERS ADMINISTRATIVE MANAGEMENT OFFICE
COL W J PHILLIPS
OX 5916

SAFETY OFFICE
MR G L FEAZELL
OX 40

HISTORICAL OFFICE
DR D BIRDSELL
OX 57004

SECURITY OFFICE
COL R W HOOKER
OX 70630

OFFICE OF THE GENERAL COUNSEL
MR K M BARNES
OX 5208

OFFICE OF THE SURGEON
COL R O WALLACE JR MD
OX 74211

OFFICE OF THE CHAPLAIN
COL F O HUNT JR
OX 77004

OFFICE OF THE INSPECTOR GENERAL
COL J J FRAGALA
OX 72876

MAJOR SUBORDINATE COMMANDS

COMMAND HEADQUARTERS

U S ARMY AVIATION SYSTEMS COMMAND
ST LOUIS MO
MG F KORNET JR
INTEGRATED COMMODITY MANAGEMENT OF AERONAUTICAL AND AIR DELIVERY EQUIPMENT AND OF TEST EQUIPMENT THAT IS A PART OF OR USED WITH ASSIGNED MATERIEL BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 63166
AREA CODE 314
TEL 268 3163
AUTOVON 698 3163

U S ARMY MISSILE COMMAND
REDSTONE ARSENAL ALA
MG E I DONLEY
INTEGRATED COMMODITY MANAGEMENT OF FREE ROCKETS GUIDED MISSILES BALLISTIC MISSILES TARGET MISSILES AIR DEFENSE MISSILE FIRE COORDINATION EQUIPMENT RELATED SPECIAL PURPOSE AND MULTI SYSTEM TEST EQUIPMENT AND TEST EQUIPMENT WHICH IS A PART OF OR USED WITH ASSIGNED MATERIEL MISSILE LAUNCHING AND GROUND SUPPORT EQUIPMENT MISSILE FIRE CONTROL EQUIPMENT AND OTHER ASSOCIATED EQUIPMENT BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 35809
AREA CODE 205
TEL 876 1127
AUTOVON 746 PR E t
INFO 746 0011

U S ARMY ELECTRONICS COMMAND
FORT MONMOUTH N J
MG H F FOSTER JR
INTEGRATED COMMODITY MANAGEMENT OF COMMUNICATIONS EQUIPMENT COMMUNICATIONS ELECTRONICS INTELLIGENCE EQUIPMENT ELECTRONIC WARFARE AVIATION ELECTRONICS COMBAT SURVEILLANCE TARGET ACQUISITION AND NIGHT VISION EQUIPMENT PHOTOGRAPHIC AND MICROFILMING IDENTIFICATION FRIEND OR FOE SYSTEMS AUTOMATIC DATA PROCESSING RADAR (*EXCLUDING THAT USED IN FIRE CONTROL AND FIRE COORDINATION OF AIR DEFENSE SYSTEMS ASSIGNED TO ANOTHER COMMAND FOR MANAGEMENT*) METEROLOGICAL AND ELECTRONIC RADIOLOGICAL DETECTION MATERIEL ASSIGNED BATTERIES AND ELECTRIC POWER GENERATION EQUIPMENT DETERMINE VULNERABILITY OF ARMY MISSILES AND COMMUNICATIONS ELECTRONIC EQUIPMENT AND SYSTEMS TO ELECTRONIC COUNTER MEASURES (ECM) AND DETERMINE REQUIREMENTS FOR ECM SUBSYSTEMS AND TECHNIQUES TO INCREASE ARMY MISSILE SYSTEM EFFECTIVENESS AND TEST EQUIPMENT WHICH IS A PART OF OR USED WITH ASSIGNED MATERIEL AND ELECTRONIC PARTS AND MATERIALS COMMON TO ELECTRONIC MATERIEL THROUGHOUT THE ARMY BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 07703
AREA CODE 201
FL 535 1 35
AL IN 91 1

U S ARMY TANK AUTOMOTIVE COMMAND
WARREN MICH
MG J E PIEKLIK
INTEGRATED COMMODITY MANAGEMENT OF TACTICAL WHEELED AND GENERAL PURPOSE VEHICLES AND TEST EQUIPMENT WHICH IS A PART OF OR USED WITH ASSIGNED MATERIEL BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 48090
AREA CODE 313
TEL 573 1000
AUTOVON 273 1101

U S ARMY MOBILITY EQUIPMENT COMMAND
ST LOUIS MO
BG J C RAAEN JR
INTEGRATED COMMODITY MANAGEMENT OF SURFACE TRANSPORTATION EQUIPMENT (*OTHER THAN TACTICAL WHEELED AND GENERAL PURPOSE VEHICLES*) MAPPING AND GEODOSY EQUIPMENT FOR THE FIELD ARMIES ASSIGNED ELECTRIC POWER GENERATION EQUIPMENT CONSTRUCTION AND SERVICES EQUIPMENT BARRIER EQUIPMENT (*UNCLUDING MINE WARFARE AND DEMOLITIONS EQUIPMENT*) BRIDGING AND STREAM CROSSING EQUIPMENT PETROLEUM HANDLING AND DISPENSING EQUIPMENT GENERAL SUPPORT EQUIPMENT AND SUPPLIES (*FIRE FIGHTING INDUSTRIAL ENGINE HEATING AND AIR CONDITIONING WATER PURIFICATION MATERIALS HANDLING ETC*) TEST EQUIPMENT THAT IS A PART OF OR USED WITH ASSIGNED MATERIEL BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 63120
AREA CODE 314
TEL AM 3 1110
AUTOVON 693 1110

U S ARMY MUNITIONS COMMAND
DOVER N J
MG E M GRAHAM JR
INTEGRATED COMMODITY MANAGEMENT OF NUCLEAR AND NONNUCLEAR AMMUNITION ROCKET AND MISSILE WARHEAD SECTIONS DEMOLITION MUNITIONS MINES BOMBS GRENADES PYROTECHNICS BOOSTERS JATO s AND GAS GENERATORS RADIOLOGICAL MATERIEL PROPELLANT ACTUATED DEVICES TEST EQUIPMENT THAT IS A PART OF OR USED WITH ASSIGNED MATERIEL CLIPS LINKS AND FACTORY LOADED MAGAZINES FOR NONNUCLEAR AMMUNITION AND RELATED COMPONENTS AND EQUIPMENT BASIC AND APPLIED RE EARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
MAJOR COMMODITY CENTERS
USA AMMO PROC & SUP AGCY JOLIET ILL
BG P G OLENCHUK
EDGEWOOD ARSENAL MD COL J K STONER JR
FRANKFORD ARSENAL PHILA PA CO J L WALLACE
PICATINNY ARSENAL DOVER N J COL J A CHECK (A t)
ZIP CODE 07801
AREA CODE 201
TEL 328 3144
AUTOVON 880 110

U S ARMY TEST & EVALUATION COMMAND
ABERDEEN PG MD
MG F M IZENOUR
ENGINEERING (*EXCEPT AIRCRAFT PERFORMANCE STABILITY AND CONTROL*) AND SERVICE TESTS AND EVALUATIONS SUPPORT ENGINEER DESIGN PRODUCTION AND POST PRODUCTION TESTS AND PARTICIPATION IN TROOP TEST PLANNING MANAGE AND OPERATE A NATIONAL MISSILE RANGE AT WSMR NEW MEXICO
ZIP CODE 21005
AREA CODE 301
TEL 278 4374
AUTOVON 8 0 1110

U S ARMY WEAPONS COMMAND
ROCK ISLAND ILL
MG H A RASMUSSEN
INTEGRATED COMMODITY MANAGEMENT OF WEAPONS INCLUDING ARTILLERY WEAPONS CREW SERVED WEAPONS AND AIRCRAFT WEAPON SYSTEMS COMBAT VEHICLES FIRE CONTROL EQUIPMENT (*EXCLUDING THAT INTEGRAL TO MISSILE SYSTEMS AND AIR DEFENSE FIRE COORDINATION SYSTEMS*) COMMON TYPE TOOLS AND COMMON TYPE TOOL AND SHOP SETS (*EXCLUDING DSA AND GSA ITEMS*) AND TEST EQUIPMENT THAT IS A PART OF OR USED WITH ASSIGNED MATERIEL BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 61201
AREA CODE 309
TEL 794 6001
AUTOVON 793 1110

U S ARMY SAFEGUARD LOGISTICS COMMAND
HUNTSVILLE ALA
BG C W HOSPELHORN
ROVIDE MISSION ESSENTIAL LOGISTIC SUPPORT TO THE SAFEGUARD SYSTEM EXCEPT FOR NUCLEAR MUNITIONS AND AUXILLARY QUIPMENT
ZIP CODE 35804
AREA CODE 205
TEL 895 3440
AUTOVON 742 1440

INSTALLATIONS AND ACTIVITIES

INSTALLATIONS/ACTIVITIES
USA AERONAUTICAL DEPOT MAINT CEN CORPUS CHRISTI TEXAS
USA AVIATION TEST ACTV EDWARDS AFB CALIF
HQ USA AIR MOBILITY RSCH & DEV LAB AMES RSCH CEN MOFFETT FIELD CALIF
INDUSTRIAL PLANTS
SAGINAW ARMY AIRCRAFT PLANT FT WORTH TEXAS
NATIONAL MAINTENANCE POINT
U S ARMY AVIATION SYSTEMS COMMAND ST LOUIS MO
NATIONAL INVENTORY CONTROL POINT
U S ARMY AVIATION SYSTEMS COMMAND ST LOUIS MO

INSTALLATIONS/ACTIVITIES
REDSTONE ARS ALA
INDUSTRIAL PLANTS
LAWNDALE ARMY MSL PLANT LAWNDALE CALIF
MICHIGAN ARMY MSL PLANT WARREN MICH
TARHEEL ARMY MSL PLANT BURLINGTON N C
NATIONAL MAINTENANCE POINT
U S ARMY MISSILE COMMAND REDSTONE ARSENAL ALA
NATIONAL INVENTORY CONTROL POINT
U S ARMY MISSILE COMMAND REDSTONE ARSENAL ALA

INSTALLATIONS/ACTIVITIES
DIRECTORATE OF RESEARCH & DEVELOPMENT USAECOM FT MONMOUTH N J
ELECTRONICS COMPONENTS LAB FT MONMOUTH N J
FT MONMOUTH FT MONMOUTH N J
INSTITUTE FOR EXPLORATORY RESEARCH FT MONMOUTH N J
USA COMBAT SURVEILLANCE & TARGET ACQUISITION LAB FT MONMOUTH N J
USA COMMUNICATIONS & ADP LAB FT MONMOUTH N J
USA ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N M
USA ELECTRONICS WARFARE LAB FT MONMOUTH N J
USA AVIONICS LAB FT MONMOUTH N J
NATIONAL MAINTENANCE POINT
U S ARMY ELECTRONICS COMMAND FT MONMOUTH N J
NATIONAL INVENTORY CONTROL POINT
U S ARMY ELECTRONICS COMMAND FT MONMOUTH N J

INSTALLATIONS/ACTIVITIES
DETROIT ARSENAL WARREN MICH
KEWEENAW FIELD STA HOUGHTON MICH
LIMA ARMY MODIFICATION CENTER LIMA OHIO
USA MOBILITY SYSTEMS LAB WARREN MICH
USA PONTIAC STORAGE FACILITY PONTIAC MICH
INDUSTRIAL PLANTS
MUSKEGON ARMY ENGINE PLANT MUSKEGON MICH
NATIONAL MAINTENANCE POINT
U S ARMY TANK AUTOMOTIVE COMMAND WARREN MICH
NATIONAL INVENTORY CONTROL POINT
U S ARMY TANK AUTOMOTIVE COMMAND WARREN MICH

INSTALLATIONS/ACTIVITIES
USA MOBILITY EQUIP RSCH & DEV LAB FT BELVOIR VA
NATIONAL MAINTENANCE POINT
U S ARMY MOBILITY EQUIPMENT COMMAND ST LOUIS MO
NATIONAL INVENTORY CONTROL POINT
U S ARMY MOBILITY EQUIPMENT COMMAND ST LOUIS MO

INSTALLATIONS/ACTIVITIES
PINE BLUFF ARSENAL PINE BLUFF ARK
ROCKY MOUNTAIN ARSENAL DENVER COLO
ARMY AMMUNITION PLANTS

ALABAMA	MILAN MILAN TENN
CHILDERSBURG ALA	NEWPORT
BADGER BARABOO WIS	NEWPORT IND
BURLINGTON	NIAGARA FALLS NIAGARA
BURLINGTON N J	FALLS N Y
CORNHUSKER	PHOSPHATE DEV WORKS
GRAND ISLAND NEBR	MUSCLE SHOALS ALA
GATEWAY ST LOUIS MO	RADFORD RADFORD VA
HAYS PITTSBURGH PA	RAVENNA RAVENNA OHIO
HOLSTON KINGSPORT TENN	RIVERBANK RIVER BANK
INDIANA CHARLESTOWN IND	CALIF
IOWA BURLINGTON IOWA	ST LOUIS ST LOUIS MO
JOLIET JOLIET ILL	SCRANTON SCRANTON PA
KANSAS PARSONS KANSAS	SUNFLOWER LAWRENCE
LAKE CITY	KANSAS
INDEPENDENCE MO	TWIN CITIES MINNEAPOLIS
LONE STAR	MINN
TEXARKANA TEX	VOLUNTEER
LONGHORN MARSHALL TEX	CHATTANOOGA TENN
LOUISIANA SHREVEPORT LA	

NATIONAL MAINTENANCE POINT
USA MUNITIONS COMMAND JOLIET ILL
NATIONAL INVENTORY CONTROL POINT
USA MUNITIONS COMMAND JOLIET ILL

INSTALLATIONS/ACTIVITIES
ABERDEEN PG ABERDEEN MD
DESERET TEST CENTER SALT LAKE CITY UTAH
DUGWAY PG DUGWAY UTAH
JEFFERSON PG MADISON IND
USA ABN COMM & ELECT BD FT BRAGG N C
USA AIR DEF BD FT BLISS TEX
USA ARCTIC TEST CENTER FT GREELY ALASKA
USA ARMOR ENGINEER BD FT KNOX KY
USA AVN TEST BD FT RUCKER ALA
USA ELECT PG FT HUACHUCA ARIZ
USA FIELD ARTILLERY BD FT SILL OKLA
US ARMY GARRISON ABERDEEN PG MD
USA GENERAL EQUIP TEST ACTIV FT LEE VA
USA INF BD FT BENNING GA
USA TROPIC TEST CENTER FT CLAYTON CZ
WHITE SANDS MSL RANGE N MEX
YUMA PG YUMA ARIZ
INDUSTRIAL PLANTS
CLEVELAND ARMY TANK AUTMV PLANT CLEVELAND OHIO
NATIONAL MAINTENANCE POINT
U S ARMY WEAPONS COMMAND ROCK ISLAND ILL
NATIONAL INVENTORY CONTROL POINT
U S ARMY WEAPONS COMMAND ROCK S AND ILL

INSTALLATIONS/ACTIVITIES
ROCK ISLAND ARSENAL ROCK ISLAND ILL
USAMC FIRING RANGE UNDERHILL VT
WATERVLIET ARSENAL WATERVLIET N Y
NATIONAL MAINTENANCE POINT
U S ARMY SAFEGUARD LOGISTICS COMMAND HUNTSVILLE ALA
NATIONAL INVENTORY CONTROL POINT
U S ARMY SAFEGUARD LOGISTICS COMMAND HUNTSVILLE ALA

INSTALLATIONS/ACTIVITIES
USA SAFEGUARD DEPOT ACTIVITY REDSTONE ARSENAL HUNTSVILLE ALA
NATIONAL MAINTENANCE POINT
U S ARMY SAFEGUARD LOGISTICS COMMAND HUNTSVILLE ALA
NATIONAL INVENTORY CONTROL POINT
U S ARMY SAFEGUARD LOGISTICS COMMAND HUNTSVILLE ALA

OTHER INSTALLATIONS AND ACTIVITIES

PROJECT/PRODUCT MANAGERS
LOCATED AT HEADQUARTERS AMC

CHAPARRAL/VULCAN	COL W J ARNOLD JR	OX 72190
CONTAINER SYSTEMS	COL R A CRAMER	OX 53976
MOBILE ELECTRIC POWER	COL J J ROCHEFORT JR	OX 71152

LOCATED OUTSIDE HEADQUARTERS AMC

ADVANCED AERIAL WEAPONS SYSTEM	BG H H BOLZ JR	St Louis Mo	698 2927
ARMORED RECON SCOUT VEHICLE	LTC O C DECKER	Wa e M h	273 2208
ARMY AREA COMMUNICATIONS	COL E ARNOLD	Ft Mo m th N J	995 2109
ARMY TACTICAL DATA SYSTEM	BG A B CRAWFORD	Ft Mo mouth N J	992 3158
BOMBS & RELATED COMPONENTS	COL C R BLAHA	Dove N J	880 3150
CLOSE SUPPORT WEAPONS SYS	COL S T POST JR	Rock I nd Ill	793 6626
DESERET	BG M ETKIN	Fo t D gl Utah	924 4123
DRAGON	MR R P WHITLEY	Red to A Ala	746 7194
GOER VEHICLES	COL J W SHARP	W M h	369 2977
HAWK	COL H BUZZETT	Red tone A Ala	746 5609
HEAVY LIFT TRANSPORT AVIATION SYSTEM	COL W M McKEOWN	St L Mo	698 6464
INFRARED COUNTERMEASURES	COL S SHIREY	St Lo Mo	698 3961
LANCE	BG R PROUDFOOT	Red t A Al	746 6144
LAND COMBAT SUPPORT SYS	LTC F A MATTHEWS	Red t A Al	746 8171
LIGHT OBSERVATION HELICOPTER	COL J E BAKER	St L Mo	698 3741
M 60 TANK	LTC S R SHERIDAN	War M h	369 2519
M 561/XM 705 TRUCKS	LTC D M BABERS	War M h	369 2638
MAIN BATTLE TANK XM803	BG B R LUCZAK (R t)	Wa e M h	892 1771
MANNED AERIAL SURVEILLANCE & TARGET ACQUISITION SYS	COL J A LOVE	St Lou Mo	698 3995
MECHANIZED INFANTRY COMBAT VEHICLE	LTC P B KENYON	War M h	273 1830
NAVIGATION CONTROL	LTC C W M DOWELL	Ft Mo mo th N J	992 4240
NIGHT VISION	COL A SURKAMP	Ft B l o Va	192 45503
PERSHING	COL S C SKEMP JR	Red to e A Ala	746 1165
2 75 ROCKET SYSTEM	COL L J FAUL	D N J	880 2925
SAFEGUARD MUNITIONS	COL F C HEALY	Do N J	980 5285
SAM D	BG J C FIMIANI	Red ton A s At	746 3201
SATCOMA	COL L D WAMSTED	Ft Mo mo th N J	992 1228
SELECTED AMMUNITION	COL K E LOCKWOOD	D ver N J	880 3230
SENSOR MATERIEL OPERATIONS	COL D U ARMSTRONG	Ft M mo th N J	992 4541
STARCOM	BG D W OGDEN JR	Ft Mo mo th N J	793 6625
TOW	LTC R HUNTZINGER	Red to e A Al	746 5185
UTILITY AIRCRAFT	COL L D TURNER	St L s Mo	698 3831
VEHICLE RAPID FIRE WEAPONS SYSTEM	COL R W NOCE	Rock I land Ill	793 6852

SEPARATE INSTALLATIONS AND ACTIVITIES UNDER HEADQUARTERS AMC

ARMY MATERIALS & MECHANICS RSCH CEN WATERTOWN MASS	684 8010
FORT DETRICK MD	231 1350
HARRY DIAMOND LABS WASHINGTON D C	226 9011
JOINT MIL PACKAGING TNG CEN ABERDEEN MD	234 3350
NATICK LABS NATICK MASS	955 1001
USA ADVANCED MATERIEL CONCEPTS AGENCY ALEXANDRIA VA	325 0186
USA BIOLOGICAL DEFENSE RSCH CEN FORT DETRICK MD	231 1350
USA LOGISTIC ASSISTANCE OFFICE EUROPE	8888 (HEIDELBERG)
USA LOGISTIC ASSISTANCE OFFICE KOREA	3174 (YONGSAN)
USA LOGISTIC ASSISTANCE OFFICE PACIFIC	431 0111
USA LOGISTIC ASSISTANCE OFFICE RYUKYUS	5144
USA LOGISTIC ASSISTANCE OFFICE VIETNAM	4263 (LONG BINH)
USA EQUIP AUTHORIZATIONS REV CEN FT BELVOIR VA	354 1904
USA FIELD OFC HQ AFSC WASHINGTON D C	858 3227
USA FIELD OFC USAF SAMSO L A CALIF	833 1306
USA FGN SCIENCE & TECH CEN CHARLOTTESVILLE VA	274 7110
USA GENERAL MATERIEL & PARTS CEN NEW CUMBERLAND PA	917 7203
USA INTERNATIONAL LOGISTICS CEN NEW CUMBERLAND PA	977 6911
USA LOGISTICS CONTROL OFC ATLANTIC NEW CUMBERLAND PA	977 1110
USA LOGISTICS CONTROL OFC PACIFIC SAN FRANCISCO CALIF	586 1110
USA LOGISTICS MGT CENTER FT LEE VA	723 3600
USA MAINTENANCE BOARD FT KNOX KY	726 3300
USA MAJOR ITEM DATA AGCY CHAMBERSBURG PA	242 6300
USA MGT ENGR TNG AGCY ROCK ISLAND ILL	433 1700
USA MATERIEL SYSTEMS ANALYSIS AGENCY ABERDEEN MD	870 2432
USA TNG DEV AGCY USN TNG DEV CEN ORLANDO FLA	791 5202
USA PDN EQUIP AGCY ROCK ISLAND ILL	433 1700
USA R&D LIAISON DET WRIGHT PATTERSON AFB OHIO	551 1350
USA SATELLITE COM AGCY FT MONMOUTH N J	234 1796
USA SMALL ARMS SYSTEMS AGCY ABERDEEN PROVING GROUND MD	234 3350
USA STAND FLD SUP GP FT BELVOIR VA	354 1450
USA SUP CEN RICHMOND VA	695 4747
USAMC AMMO CEN SAVANNA ILL	884 1460
USAMC AUGMENTATION ELEMENT USA COM SYSTEMS AGCY FT MONMOUTH N J	992 9910
USAMC AUTO LOG MGT SYS AGENCY ST LOUIS MO	698 6044
USAMC COMMUNICATIONS DET WASHINGTON D C	OX 50591
USAMC FLD OFC KIRTLAND AFB ALBUQUERQUE N MEX	553 3320
USAMC FLD SAFETY AGCY CHARLESTOWN IND	726 1480
USAMC FLD SUP ACTIVITY FORT HOOD MASSTER FORT HOOD TEX	737 2131
USAMC IG ATLANTA FLD OFC FOREST PARK GA	477 5781
USAMC IG NEW YORK FLD OFC NEW YORK N Y	944 9591
USAMC IG SAN FRANCISCO FLD OFC SAN FRANCISCO CALIF	993 6155
USAMC IG ST LOUIS FLD OFC ST LOUIS MO	693 3440
USAMC INFANTRY R&D LIAISON OFFICE FT BENNING GA	431 1410
USAMC INSTL & SVC AGCY ROCK ISLAND ILL	433 1700
USAMC LOGISTIC DATA CENTER LEXINGTON KY	745 3100
USAMC LOGISTICS SYS SUP AGCY CHAMBERSBURG PA	242 6389
USAMC MAINTENANCE SUP CEN CHAMBERSBURG PA	242 7130
USAMC PERSONNEL SUP AGCY WASHINGTON D C	OX 55937
USAMC SECURITY SUP AGCY FOREST PARK GA	697 7301
USAMC SPC PROJECTS OFC NORFOLK VA	555 1370 X3207
USAMC SURETY FIELD OFFICE DOVER N J	811 5196
USAMC TAIWAN MATERIEL AGCY TAIPEI TAIWAN TAIPEI MILITARY 2351	
USAMC WOODBRIDGE RESEARCH FACILITY FT BELVOIR VA	354 5520

ARMY DEPOTS

ANNISTON ANNISTON ALA	882 3400
ATLANTA FOREST PARK GA	477 5201/2
CHARLESTON N CHARLESTON S C	630 1450
GRANITE CITY GRANITE CITY ILL	947 9001
LETTERKENNY CHAMBERSBURG PA	242 6300
LEXINGTON BLUE GRASS LEXINGTON KY	745 1110
NEW CUMBERLAND HARRISBURG PA	977 1110
PUEBLO PUEBLO COLO	887 8101
RED RIVER TEXARKANA TEX	956 4110
SACRAMENTO SACRAMENTO CALIF	030 3700
SAVANNA SAVANNA ILL	884 1460
SENECA ROMULUS N Y	822 1400
SHARPE LATHROP CALIF	462 2011
SIERRA HERLONG CALIF	831 1355
TOBYHANNA TOBYHANNA PA	247 9201
TOOELE TOOELE UTAH	890 1500
UMATILLA HERMISTON OREGON	891 3201

ARMY CLASS MANAGER ACTIVITIES

ARMY CLASS MANAGER ACTIVITIES

USA AREA SUP COMD CHICAGO ILL	551 1475
ACMA FOR IND SUP FRANKFORD ARS (PROVI PHILA PA	234 1800
USA SUP CEN PHILA PA	444 2500
USA PETRL CEN ALEXANDRIA VA	228 8506

MAJOR AMC PROCUREMENT ACTIVITIES

PROCUREMENT AGENCIES

USA NEW YORK PROCUREMENT AGENCY
NEW YORK N Y
USA SAN FRANCISCO PROCUREMENT AGENCY
OAKLAND CALIF

PROCUREMENT OFFICES

USA AVIATION SYSTEMS COMMAND ST LOUIS MO
USA ELECT COMD DIRECT OF PROC & PROD
PHILA PROC DIV FT MEADE PROC DIV
FT MONMOUTH PROC DIV WASH PROC DIV
USA MISSILE COMD REDSTONE ARS ALA
USA MOBILITY EQUIPMENT COMD ST LOUIS MO
USA MUNITIONS COMMAND DOVER N J
AMMO PROC & SUP AGCY JOLIET ILL
EDGEWOOD ARS EDGEWOOD MD
FRANKFORD ARS PHILA PA
PICATINNY ARS DOVER N J
USA TANK AUTOMV COMD WARREN MICH
USA WEAPONS COMD ROCK ISLAND ILL
ROCK ISLAND ARS ROCK ISLAND ILL
WATERVLIET ARS WATERVLIET N Y

MISSION
U.S. ARMY MATERIEL COMMAND

Manage the wholesale materiel activities of the Army

Provide supply and maintenance support to the Army - and to other customers

Assist in the formulation of the Army material program and implement the program

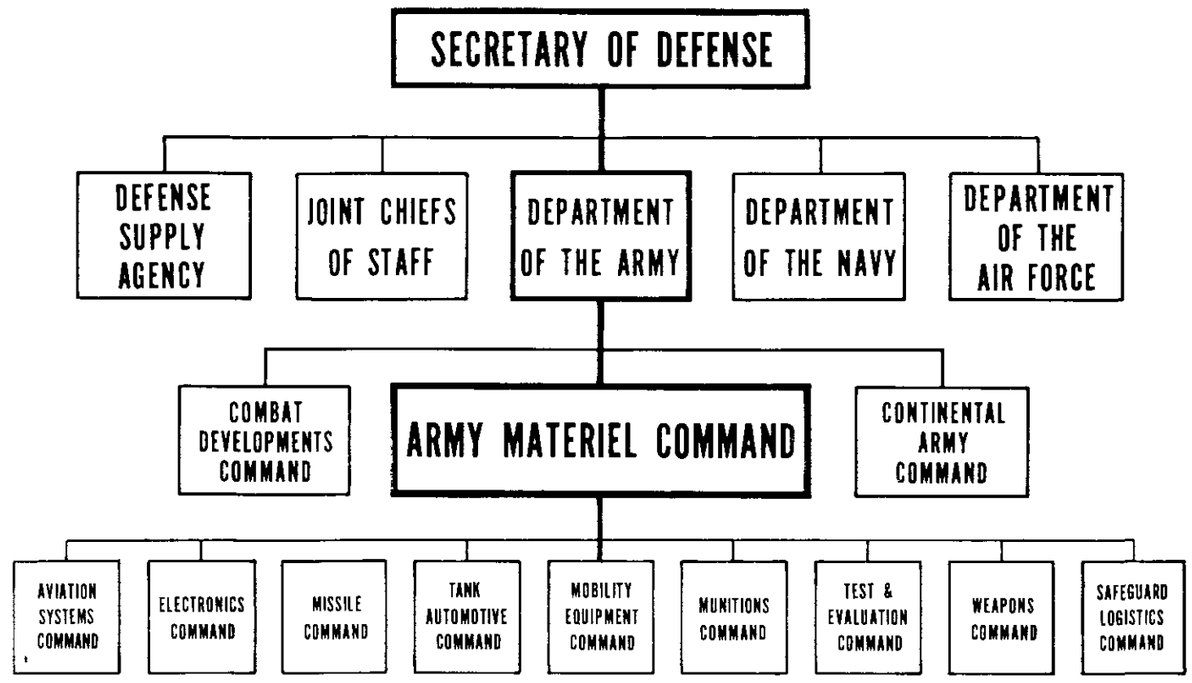
MAJOR SUBORDINATE COMMAND MISSION RESPONSIBILITIES

The primary mission responsibilities of the Major Subordinate Commands for the commodity items reflected on the inside of this guide are indicated below

MISSIONS RESPONSIBILITY / MAJOR SUBORDINATE COMDS	AVIATION SYSTEMS	ELECTRONICS	MISSILE	TANK-AUTOMOTIVE	MOBILITY EQUIPMENT	MUNITIONS	TEST AND EVALUATION	WEAPONS	SAFEGUARD LOGISTICS
RESEARCH	X	X	X	X	X	X		X	
DESIGN	X	X	X	X	X	X		X	
DEVELOPMENTAL TESTING	X	X	X	X	X	X		X	
CATALOGING & STANDARDIZATION	X	X	X	X	X	X		X	X
MAINTENANCE ENGINEERING	X	X	X	X	X	X		X	X
PROCUREMENT	X	X	X	X	X	X		X	X
PRODUCT & PRODUCTION ENGINEERING	X	X	X	X	X	X		X	X
INDUSTRIAL MOBILIZATION	X	X	X	X	X	X		X	
NEW EQUIPMENT TRAINING	X	X	X	X	X	X		X	
WHOLESALE INVENTORY MANAGEMENT	X	X	X	X	X	X		X	X
TECHNICAL ASSISTANCE	X	X	X	X	X	X		X	X
SUPPLY & FINANCIAL MANAGEMENT	X	X	X	X	X	X	X	X	X
ENGINEERING & SERVICE TESTS							X		
MATERIEL EVALUATIONS							X		
POST-PRODUCTION TEST SUPPORT							X		
TROOP TESTS (PARTICIPATION)							X		
RETAIL INVENTORY MANAGEMENT									X

A GUIDE to the*

ARMY MATERIEL COMMAND ORGANIZATION & MISSIONS



Headquarters
United States Army Materiel Command
Bldg T-7
Washington, D C 20315
Cable Address - CGUSAMC

SEPTEMBER 1971

* Charts shown are not official organization charts

UNCLASSIFIED

US Army Materiel Command (AMC) commanded by General Henry A Miley Jr consists of a nationwide network of 83 military installations and more than 100 activities

AMC was established 8 May 1962 The Command became operational 1 August 1962 and observes its anniversary on that date It is responsible for the materiel functions formerly performed by six of the Army s seven technical services (Ordnance Signal Quartermaster Engineer Transportation and Chemical) including research and development test and evaluation procurement and production storage and distribution inventory management maintenance and disposal

The US Army Materiel Command has the management responsibility of a $30 billion inventory and an annual expenditure of more than $10 billion It directly employs approximately 13 800 military and 133 840 civilian personnel

With headquarters in the Washington D C area AMC operates through nine major subcommands and directs the activities of depots laboratories arsenals maintenance shops proving grounds test ranges and procurement offices throughout the United States

AMC headquarters furnishes over all policy direction for its far flung operations The major subordinate commands serve as the mid management level The individual installations and activities accomplish the actual execution of the Army s materiel program AMC also makes maximum use of vertical management techniques using project and product managers to expedite development production and delivery of 37 selected major or critical weapons (equipment) systems

The nine AMC major subordinate commands including seven commodity type commands responsible for research development production and procurement in their assigned commodity areas one test and evaluation command and one logistics support type command are listed below

US Army Aviation Systems Command (AVSCOM) with headquarters at St Louis Mo is responsible for Army aviation design research and development maintenance engineering stock and supply control and technical assistance to users of all Army aviation and aerial delivery equipment It consists of approximately 10 500 military and civilian personnel The command directs the US Army Air Mobility Research and Development Laboratory with headquarters at NASA–Ames Research Center Moffett Field Calif the Army Aeronautical Depot Maintenance Center (ARADMAC) at Corpus Christi Tex the Army Aviation Systems Test Activity (ASTA) at Edwards Air Force Base Calif and Army Aviation Plant Activities at Stuart Fla Ft Worth Tex Culver City and Van Nuys Calif It is also responsible for aeronautical maintenance missions at Atlanta New Cumberland and Sharpe Army Depots

US Army Electronics Command (ECOM) with headquarters at Fort Monmouth N J is responsible for managing the entire life cycle development procurement and fielding of communications avionics radar automatic data processing meteorology night vision combat surveillance target acquisition navigation and electronic warfare equipment and systems as well as test equipment and electrical power sources This includes the integrated logistic support of all such equipment and systems at all levels of maintenance for the overall life cycle ECOM has an authorized civilian and military personnel strength of approximately 12 650 Members of the ECOM team military and civilian are located at some 25 locations throughout the world

US Army Missile Command (MICOM) with headquarters at Redstone Arsenal Ala has management responsibility for research and development procurement supply and maintenance of assigned rocket missile and related programs It consists of approximately 8 800 military and civilian personnel Small liaison offices are maintained at missile facilities and industrial locations throughout the United States and overseas but a majority of the command mission is accomplished at Redstone Arsenal The command does not manufacture weapons systems but maintains the scientific capability to monitor research development and production efforts of American industry

US Army Mobility Equipment Command (MECOM) with headquarters at St Louis Mo is responsible for integrated materiel management production and maintenance engineering basic and applied research design and development of material design test and evaluation and procurement for assigned categories of equipment Types of equipment involved are barriers and bridging water purification equipment construction equipment rail marine and amphibious equipment power generators materials and fuel handling equipment industrial engines and turbines and environmental control equipment Approximately 4 700 personnel are employed They work mainly at the St Louis headquarters and also at the Army Mobility Equipment Research and Development Center Fort Belvoir and Woodbridge Va the Marine Field Office at Norfolk Va at mobility support offices in Europe and the Pacific and at mobile rail shops for railroad support items in the United States

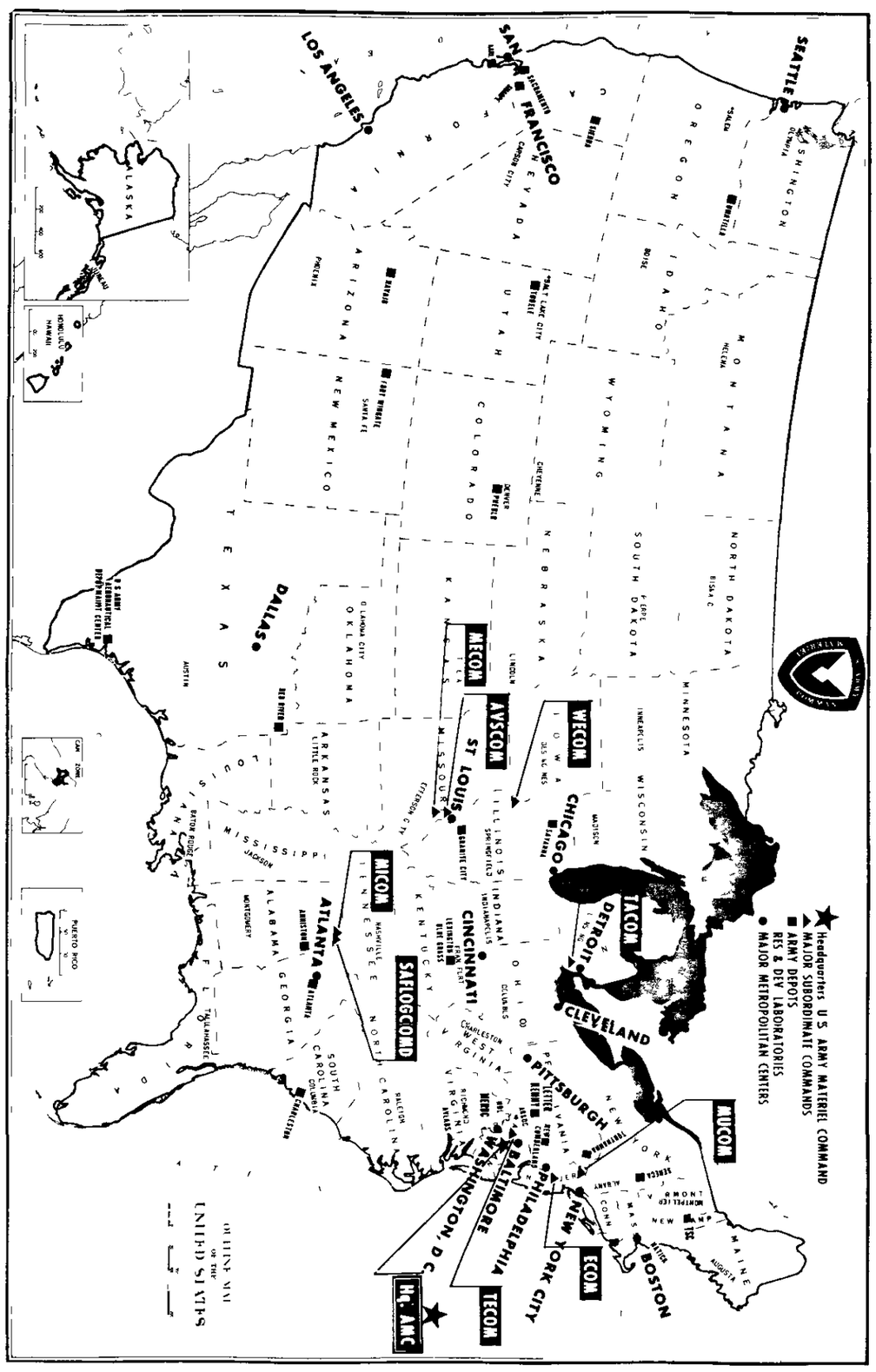
US Army Munitions Command (MUCOM) with headquarters at Picatinny Arsenal Dover N J is responsible for conventional nuclear and chemical munitions It employs more than 1 153 military and 81 700 civilian personnel at approximately 30 installations located in 21 states from coast to coast Approximately 45 800 of these employees are contractor personnel employed in more than 19 plants which are Government owned and contractor-operated commonly referred to as GOCO plants In addition to the GOCO the command operates five Government owned Government operated (GOGO) facilities Edgewood Picatinny Frankford Pine Bluff and Rocky Mountain Arsenals and the Army Ammunition Procurement and Supply Agency

US Army Tank Automotive Command (TACOM) with headquarters at Warren Mich is responsible for integrated management of vehicles and repair parts in use around the world by the Army Navy Air Force Marine Corps and allied nations procurement of materiel ranging from nuts and bolts to tanks applied research development and engineering of tank automotive vehicles and components for the Army and other Defense Department agencies and development of technical doctrine policies and procedures for operation service and maintenance of tank automotive materiel TACOM employs approximately 5 200 military and civilian personnel

US Army SAFEGUARD Logistics Command (SAFLOG) located at Huntsville Ala was organized 15 April 1968 with the mission of providing tactical logistical support to the SAFEGUARD System except for nuclear munitions and auxiliary equipment and COMSEC design controlled secondary items SAFEGUARD Logistics Command is responsible for exercising integrated commodity management (except for research development and system acquisition and installation) of SAFEGUARD System Tactical and Tactical Support Equipment Materiel

US Army Test and Evaluation Command (TECOM) with headquarters at Aberdeen Proving Ground Md is responsible for engineering service check and initial production tests of Army materiel for providing test and evaluation support for the commodity commands and participating in troop tests when requested by the responsible command It consists of approximately 16 000 personnel and 15 installations/activities in the CONUS Alaska and Panama

US Army Weapons Command (WECOM) with headquarters at Rock Island Ill is responsible for all artillery and infantry weapons gun type armament for aircraft fire control equipment for weapons and vehicles for which the predominant requirement is firepower i e self-propelled artillery tanks and tank like vehicles to include combat engineer vehicles and recovery vehicles WECOM is responsible for common type tools equipment and sets used in Army maintenance shops as well as for the technical coordination of test measurement and diagnostic equipment In addition to approximately 3 200 Headquarters personnel the Command employs about 6 400 persons at Rock Island Arsenal Ill and Watervliet Arsenal New York



UNCLASSIFIED

US ARMY MATERIEL COMMAND

HEADQUARTERS U S ARMY MATERIEL COMMAND

WASHINGTON, DC 20315

STAFF DIRECTORY

COMMANDING GENERAL	GEN H A MILEY, JR	1750	59154/59573	AMCCG
DEPUTY COMMANDING GENERAL	LTG W W VAUGHAN	1742	59006/59571	AMCDCG
DEPUTY FOR LABORATORIES	DR R B DILLAWAY	2748	53596/54904	AMCDL
DEPUTY CG FOR MATERIEL ACQUISITION	MG J R GUTHRIE	1847	55217/55283	AMCDMA
DEPUTY CG FOR LOGISTICS SUPPORT	MG J G KALERGIS	1942	54892/54454	AMCDLS
CHIEF OF STAFF	MG C T HORNER, JR	1742	59105/59107	AMCCS
DEPUTY CHIEF OF STAFF	COL O J HARRISON	1741	59576/59574	AMCDCS

OFFICE OF DEPUTY FOR LABORATORIES — AMCDL

ASSISTANT DEPUTY FOR LABORATORIES	BG G W CONNELL	2748	74948/54904	AMCDL
CHIEF OF LABORATORY OPERATIONS	MR. N L KLEIN	2740	72285/78103	AMCDL
CHIEF SCIENTIST	DR C M CRENSHAW	2748	59756/54904	AMCDL

OFFICE OF DEPUTY COMMANDING GENERAL FOR MATERIEL ACQUISITION — AMCDMA

ASSISTANT DEPUTY FOR MATERIEL ACQUISITION	MR P E. ATWOOD	1847	55217/56098	AMCDMA
EXECUTIVE OFFICER	COL J J WALSH	1847	55283/56098	AMCDMA
ASST EXECUTIVE OFFICER	MAJ D G FITZGERALD	1847	56098/55283	AMCDMA

OFFICE OF DEPUTY COMMANDING GENERAL FOR LOGISTICS SUPPORT — AMCDLS

ASSISTANT DEPUTY FOR LOGISTICS SUPPORT	MR E GREINER	1942	54746/54454	AMCDLS
EXECUTIVE OFFICER	COL V D RIDER	1942	54454/54746	AMCDLS
ASSISTANT EXECUTIVE OFFICER	MAJ H W BYARS	1942	54892/75540	AMCDLS

COMMANDER S PERSONAL STAFF — AMCCG

AIDE DE CAMP	MAJ J R COTE	1750	59573/59205	AMCCC
ADMINISTRATIVE ASST	CPT S E FREIT	1750	59573/59205	AMCCC
SECRETARY	MRS I HARMON	1750	56267/59573	AMCCG

COMMAND SERGEANT MAJOR

COMMAND SERGEANT MAJOR	CSM D E TENNOW	1734	76764/70615	AMCCSM

SECRETARY OF THE GENERAL STAFF — AMCGS

SECY OF THE GENERAL STAFF	COL O J HARRISON	1741	59576/59574	AMCGS
DEP SECY OF THE GENERAL STAFF	LTC I A BROOKS	1741	59574/59576	AMCGS
ASST SECY OF THE GENERAL STAFF	LTC J B GRINSTEAD	1739	59578/59576	AMCCS
ASST SECY OF THE GENERAL STAFF	MAJ W O MORRISON	1739	59578/59576	AMCCS
ASST SECY OF THE GENERAL STAFF	LTC J R MILLER	1737	71086/55440	AMCGS
ASST SECY OF THE GENERAL STAFF	MAJ C W HENRY JR	1737	71086/55440	AMCGS
ASST SECY OF THE GENERAL STAFF	MAJ F J CALVERASE	1735	71121/73951	AMCGS
CHIEF VISITORS BUREAU	MRS H L SALPINI	C 74	77387/77387	AMCCS V
ADMINISTRATIVE OFFICER	MRS L M FERTI	1736	928 9 81	AMCCS A

OFFICE OF THE COMPTROLLER — AMCCP

COMPTROLLER	BG H E. HALLGREN	2525	77897/77592	AMCCP
DEPUTY COMPTROLLER	MR W O HARRIS	2525	77654/77592	AMCCP
ASSISTANT COMPTROLLER FOR PROGRAMS & BUDGET	COL M H HAMILTON	1503	74255/72541	AMCCP
EXECUTIVE OFFICER	COL B A LOWERY	2525	56453/77670	AMCCP
ADMINISTRATIVE OFFICE	MRS A L PYLE	2529	54123/70205	AMCCP A
BUDGET DIVISION	COL M H HAMILTON	1503	74255/72541	AMCCP B
COST ANALYSIS DIVISION	MR W J TROPF JR	2522	76751/78864	AMCCP E
FINANCE & ACCOUNTING DIVISION	COL R A RAICHLEN	2406	72762/72772	AMCCP F
INTERNAL REVIEW & AUDIT COMPLIANCE OFFICE	MR J K CHURCH	2423	52742/59360	AMCCP I
PROGRAM & MANAGEMENT DIVISION	COL P L DAL PONTE	2509	71030/70855	AMCCP P
REVIEW & ANALYSIS DIVISION	MR I BERG	2543	71625/54249	AMCCP R

DIRECTORATE FOR PERSONNEL, TRAINING, & FORCE DEVELOPMENT — AMCPT

DIRECTOR	BG W J WHELAN	1535	59128/59596	AMCPT
DEPUTY DIRECTOR	MR W S CHARIN	1535	59596/59128	AMCPT
EXECUTIVE OFFICER	LTC P D HAUN	1535	53308/59596	AMCPT
PLANS & ADMINISTRATIVE OFFICE	MR C W ROHRER	1533	52563/59701	AMCPT A
FORCE DEVELOPMENT DIVISION	MR F T ELLIOT JR	1542	78609/78623	AMCPT-S
HQ MANPOWER OFFICE	MR P R ZEKAN	1538	57756/52770	AMCPT SM
MILITARY PERSONNEL DIVISION	COL R K ESTES	1421	52263/59131	AMCPT M
HQ MILITARY PERSONNEL OFFICE	LTC D J DORSEY	1427	54050/72635	AMCPT MR
CIVILIAN PERSONNEL DIVISION	MR N BRANDT	1441	55113/70400	AMCPT-C
HQ CIVILIAN PERSONNEL OFFICE	MR R VELTHUIS	G-432	79278/76811	AMCPT-CO
TRAINING DIVISION	COL D L HARRIS	1412	73409/73416	AMCPT T
SPEC ASST FOR MODERN VOLUNTEER ARMY	COL J M EVANS	1423	53220/ 3409	AMCPT MVA

DIRECTORATE FOR PLANS AND ANALYSIS — AMCPA

DIRECTOR	LTC R L MOORE	1728	50592/57945	AMCPA
DEPUTY DIRECTOR	MR D J SHEARIN	1728	50592/57945	AMCPA
CONCEPTS & PLANS DIVISION	MR T I GROSSMAN	1726	77997/59584	AMCPA P
ENVIRONMENTAL CONTROL OFFICE	MR B HILDEBRAND	1064	76340/70798	AMCPA EC
STUDY PROGRAMS DIVISION	MR P DAVIS	1710	53437/70881	AMCPA S
SYSTEMS ANALYSIS DIVISION	LTC V SPEICHER	1729	76098/76398	AMCPA SA

DIRECTORATE FOR MANAGEMENT INFORMATION SYSTEMS — AMCMS

DIRECTOR	MR J C GILBERT	1337	56600/79897	AMCMS
DEPUTY DIRECTOR	MR J A ARNTSON	1337	71919/79897	AMCMS
EXECUTIVE OFFICER	LTC J R MULLIGAN	1337	79897/71919	AMCMS
ADMINISTRATIVE OFFICE	MRS S W CLARK	1335	56912/72067	AMCMS A
RESOURCES & TECHNIQUES DIVISION	MR J CIANFLONE	1303	71588/72557	AMCMS T
SYSTEMS MANAGEMENT DIVISION	DR R P UHLIG	1329	52996/54096	AMCMS I
SYSTEMS OPERATION DIVISION	MR H MITCHELL	1306	70835/70943	AMCMS E

DIRECTORATE FOR INSTALLATIONS & SERVICES — AMCIS

DIRECTOR	COL C YOUNG	1227	55486/55487	AMCIS
DEPUTY DIRECTOR	COL H DAKIN	1227	55486/55487	AMCIS
COMMUNICATIONS ELECTRONICS DIVISION	COL M A WALKER	1230	57952/59389	AMCIS-C
INSTALLATION LOGISTICAL SUPPORT DIVISION	MR R H SHAW	1212	59503/78827	AMCIS S
PLANS PROGRAMS & ADMINISTRATIVE OFFICE	MR G A SOSSICH	1221	59844/75002	AMCIS P
REAL PROPERTY MANAGEMENT DIVISION	COL J H BOWMAN	1204	73731/73732	AMCIS M

DIRECTORATE FOR QUALITY ASSURANCE — AMCQA

DIRECTOR	MR S J LORBER	2441	77907/59155	AMCQA
DEPUTY DIRECTOR	MR N C KRAUSE	2441A	59197/59155	AMCQA
PRODUCT OPERATIONS DIVISION	MR R F TINER	2434	50201/50203	AMCQA P
QUALITY ENGINEERING DIVISION	MR A H NORDSTROM JR	2440	79966/79846	AMCQA F
VALUE ENGINEERING DIVISION	MR J STOLARICK	2439	59152/74281	AMCQA V

DIRECTORATE FOR RESEARCH, DEVELOPMENT & ENGINEERING — AMCRD

DIRECTOR	MG S C MEYER	2744	74728/74843	AMCRD
DEPUTY DIRECTOR FOR OPERATIONS	BG M E GATES	2744	74843/74295	AMCRD
DEPUTY DIRECTOR FOR PLANS	DR J V R KAUFMAN	2748	74295/74843	AMCRD
ASSISTANT FOR SPECIAL PROJECTS	COL P R FLORCRUZ	2072	73322	AMCRD
EXECUTIVE OFFICER	COL M F ORMOND	2744	74815/74295	AMCRD-X
ADMINISTRATIVE OFFICE	MISS LUCY A. JONES	2730	72755/72601	AMCRD A
AIR SYSTEMS DIVISION	COL L H GILBERT	2051	72040/56802	AMCRD F
AMC CHIEF MATHEMATICIAN	DR B KURKJIAN	2035	57542/59340	AMCRD R
BATTLEFIELD COMMAND & CONTROL DIVISION	COL D M COPP	2068	54529/71859	AMCRD O
ENGINEERING DIVISION	COL W M BOGGS	2077	74609/59737	AMCRD F
FOREIGN SCIENCE & TECHNOLOGY DIVISION	COL R A J DYER JR	2021	53224/53348	AMCRD I
INDIVIDUAL SOLDIER DIVISION	COL C S HORN	2043	75513/71120	AMCRD J
MISSILES SYSTEMS DIVISION	COL J J HOCH	2716	78170/76571	AMCRD M
PLANS & PROGRAMS DIVISION	MR W W FLYNN	2739	75883/76075	AMCRD P
RESEARCH DIVISION	DR H M EL BISI	2024	72239/72312	AMCRD T
SURFACE SYSTEMS DIVISION	COL F A RICHTER	2643	55143/55580	AMCRD-G
TEST & EVALUATION DIVISION	COL W C BEACHLER	2301	77096/53430	AMCRD U
WEAPONS/MUNITIONS SYSTEMS DIVISION	COL W C HALL	2058	55028/ 761	AMCRD W

DIRECTORATE FOR REQUIREMENTS & PROCUREMENT — AMCRP

DIRECTOR	BG F A HINRICHS	1622	75714/53035	AMCRP
DEPUTY DIRECTOR	BG J G WAGGENER	1622	53035/78321	AMCRP
EXECUTIVE OFFICER	COL G J RIEGER	1622	78321/53035	AMCRP
ASSISTANT EXECUTIVE OFFICER	LTC J H CAWLEY	1622	75607/54474	AMCRP
ADMINISTRATIVE OFFICE	MRS E.W COOK	1634	76632/57796	AMCRP A
AIR SYSTEMS DIVISION	COL J L GUDE	2340	55222/55323	AMCRP F
BATTLEFIELD COMMAND AND CONTROL SYSTEMS DIVISION	COL P J COLE	2801	50262/75478	AMCRP-C
CONTRACTOR LABOR RELATIONS OFFICE	MR A COREY	1612	72626/76443	AMCRP LR
INDUSTRIAL PREPAREDNESS DIVISION	COL V J GORMAN	1605	59637/76403	AMCRP OIP
MISSILE SYSTEMS DIVISION	COL A N CHAMPION	2832	70005/54657	AMCRP M
PLANS & PROGRAMS DIVISION	COL P K SHEETS	2847	77715/76734	AMCRP P
PROCUREMENT MANAGEMENT REVIEW OFFICE	MR E. KINTISCH	2327	73283/72384	AMCRP R
PROCUREMENT POLICY DIVISION	COL S S MURRAY	1637	75490/75535	AMCRP S
SMALL BUSINESS OFFICE	MR J A RAMIREZ	1610	59388/59219	AMCRP Z
SURFACE SYSTEMS DIVISION	COL W M PUETZ	2802	76532/72760	AMCRP-G
WEAPONS & MUNITIONS SYSTEMS DIVISION	COL A R RAUSCH	1704	79874/78208	AMCRP W

DIRECTORATE FOR DISTRIBUTION & TRANSPORTATION — AMCDT

DIRECTOR	MG H R HIGGINS	1089	50597/50596	AMCDT
DEPUTY DIRECTOR	COL D C HOWELL (Act)	1089	50596/50595	AMCDT
EXECUTIVE OFFICER	COL W L ROGERS	1089	50595/50596	AMCDT
ADMINISTRATIVE OFFICE	MR T S TYLER	1082	53301/53302	AMCDT A
CATALOG DATA OFFICE	MR L J ARICO (Act)	G 903	50791/54832	AMCDT E
C S EVALUATION OFFICE	COL R A LITTLESTONE	1078	54492/73567	AMCDT I
INVENTORY & LOCATION SURVEY OFFICE	MR D H MAGATHAN	1902	73755/73758	AMCDT I
PLANS & PROGRAMS OFFICE	MR R W DEW	1807	54080/75987	AMCDT P
SECONDARY ITEMS OFFICE	COL E E KLUEVER	2086	54890/72931	AMCDT K
SPECIAL ASSISTANT FOR IMC	COL L L LOWE	2086	54890/72931	AMCDT-C
STOCK DISTRIBUTION DIVISION	COL G SERBOUSEK	1929	77075/55940	AMCDT S
STOCK MANAGEMENT & POLICY DIVISION	MR M I HINSON	1912	78677/74287	AMCDT M
STORAGE & TRANSPORTATION DIVISION	COL M R WAGNER	1083	57509/55415	AMCDT B
TROOP SUPPORT DIVISION	COL J P DRING	1909	50564/71073	AMCDT D

DIRECTORATE FOR MAINTENANCE — AMCMA

DIRECTOR	BG E J D AMBROSIO	2941	50601/50602	AMCMA
DEPUTY DIRECTOR	MR C L KARR	2941	50602/50603	AMCMA
EXECUTIVE OFFICER	COL D M SMITH	2941	50602/50603	AMCMA
SPECIAL ASSISTANT FOR P7M	COL W W VANCE	2907	70878	AMCMA
SPECIAL ASSISTANT FOR WORLDWIDE DEPOT MAINTENANCE	COL C D MABRY	2941	50602/50603	AMCMA
ADMINISTRATIVE OFFICE	MRS R R ORZECK	2933	55784/75589	AMCMA A
ELECTRONICS & AVIATION DIVISION	COL L R HILLMAN	2936	73531	AMCMA E
INITIAL MATERIEL SUPPORT & RETROGRADE OFFICE	COL M CHESSNOE	2930	71606	AMCMA I
INTEGRATED LOGISTICS SUPPORT DIVISION	MR H J BUKOWSKI	2909	78708	AMCMA S
MUNITIONS & MISSILES DIVISION	(VACANCY)	2902	50370/50604	AMCMA M
PLANS & PROGRAMS OFFICE	MR H A DRAUDT	2923	79603/79625	AMCMA P
VEHICLES EQUIPMENT & WEAPONS DIVISION	COL W G THOMAS III	2919	72127	AMCMA V

DIRECTORATE FOR LOGISTIC OPERATIONS — AMCLO

DIRECTOR	COL R I HALL	C 941	50702/50703	AMCLO
DEPUTY DIRECTOR	MR H F FUTCH	G 942	50704/52542	AMCLO
EXECUTIVE OFFICER	COL W B LEONARD	G 941A	50703/52542	AMCLO
ASSISTANT EXECUTIVE OFFICER	LTC A J BUDAI	G 941A	77470/52719	AMCLO
ADMINISTRATIVE OFFICE	MISS J TACKETT	C 940	53661/53609	AMCLO A
AMCID STOCK FUND OFFICE	MR W F HOWARD	C 921	54497/56198	AMCLO S
AMC OPERATIONS CENTER	LTC L G WAYNE	G 940	50451/52808	AMCLO OC
LOGISTIC ASSISTANCE & READINESS DIVISION	COL T M HUDDLESTON	C 937	74678/75072	AMCLO I
LOGISTIC DOCTRINE & SYSTEMS DIVISION	COL B I LANDIS JR	G 919	79 98/74718	AMCLO I D
MILITARY PLANS DIVISION	COL A M LEHMAN	G 923	70501/70502	AMCLO P
SA FOR ARMY NATIONAL GUARD	LTC A J BUDAI	G 941A	77470/52719	AMCLO NC
SA FOR US ARMY RESERVE	LTC L C WAYNE	C 940	504 1/52808	AMCLO AR

DIRECTORATE FOR INTERNATIONAL LOGISTICS — AMCIL

DIRECTOR	BG A W KOCSTAD	2601	54500/73074	AMCIL
DEPUTY DIRECTOR	MR W LEVITT	2605	73074/54500	AMCIL
EXECUTIVE OFFICER	COL J H BURKE	2605	75702/54500	AMCIL
ADMINISTRATIVE OFFICE	MR E J COLEMAN	2602	73563/53536	AMCIL A
CO PRODUCTION MANAGEMENT OFFICE	COL S J PAGANO	2625	71771/57567	AMCIL P
SECONDARY ITEMS SUPPORT OFFICE	COL F F FOUNTAIN JR	2619	59159/79629	AMCIL L
PLANS & PROCEDURES OFFICE	COL M GUSSIE	2040	55273/70042	AMCIL C
FREE WORLD SUPPORT DIVISION	MR R L GILL	C 916	72570/55252	AMCIL C
MILITARY SALES DIVISION	COL B P BRYSON	2609	5382_/ 6868	AMCIL M

SPECIAL ASSISTANTS — AMCSA

PROJECT MANAGEMENT	COL C E MILES JR	1840	5770 /50935	AMCSA PM
TECHNICAL RELATIONS ADVISOR	MR H HANDLER	1733	59582/76694	AMCSA H
NUCLEAR AFFAIRS	MR J L CHAMBERLIN	2712	59739/75764	AMCSA N
EOD OFFICE	MAJ H E WARREN JR	2714	57530/53314	AMCSA ND
CONGRESSIONAL AFFAIRS	MR P CYR	1711	50505/50506	AMCSA C
JOINT ACTIVITIES COORDINATOR	COL J A THOMAS	C 747	73373/59577	AMCSA JS
DEPOTS	COL R A READE	193	76569/77958	AMCSA D
FIELD SUPPORT	MR L F ANDERSON	1937	70559/77065	AMCSA F
CHEMICAL & BIOLOGICAL AFFAIRS	COL J AARON	[illegible]	[illegible]	AMCSA BC

COST AND ECONOMIC INFORMATION OFFICE — AMCCE

CHIEF	COL D A GRUENTHER	1823	59774/77536	AMCCE

EQUAL EMPLOYMENT OPPORTUNITY OFFICE — AMCEE

AMC EQUAL EMPLOYMENT OPPORTUNITY OFFICER	MR S S SCHWARTZ	1705	59110/74474	AMCEE
HQ EQUAL EMPLOYMENT OPPORTUNITY OFFICER	MR T R ADAMS	170	74474/59110	AMCEE H

SURVEILLANCE TARGET ACQUISITION NIGHT OBSERVATION (STANO) & SELECTED SYSTEMS OFFICE — AMCSO

CHIEF	COL J H W INSKEEP	1841	53793/71929	AMCSO
STUDIES PLANS COORDINATOR	LTC J H GORDON	1839	52436/79197	AMCSO
STANO PROGRAMS COORDINATOR	MR C V CHASZAR	1839	79197/52436	AMCSO
PROJECT MASSTER COORDINATOR	LTC H P FRIZZELL	1839	2436 9197	AMCSO

ENGINEERING ANALYSIS OFFICE — AMCEA

	MR L M TAYLOR (Act)	2708	53270/50330	AMCEA

HQ ADMINISTRATIVE MANAGEMENT OFFICE — AMCAM

CHIEF	COL W J PHILLIPS	G 749A	5916 / 9167	AMCAM
ASSISTANT CHIEF	MR J R GROUNDWATER	G 749A	59167/59165	AMCAM
PROJECT OFFICER BUSH HILL BUILDING	LTC R J WOOLSHLAGER	C 801	78429/78403	AMCAM
ADMINISTRATIVE SERVICES DIVISION	MR R SCHILDBACH (Act)	G 741	5773 / 6231	AMCAM A
GENERAL SERVICES DIVISION	MAJ A J WRIGHT	G 721	59784/50481	AMCAM G
HQ BUDGET & PROGRAMS OFFICE	MR H B HARE	G 746	75110/79775	AMCAM B
HQ SECURITY OFFICE	MRS L M LYON	C 711	5064 0633	AMCAM S

HISTORICAL OFFICE — AMCHO

CHIEF	DR D BIRDSELL	2018	57004/57700	AMCHO
SENIOR HISTORIANS	MR R J SNODGRASS	2022	57007/57004	AMCHO
	MR C W LYNCH	2022	57007/57004	AMCHO
HISTORIANS	MR M G MARKEN SR	2022	57007/57004	AMCHO
	MR A A PUTIGNANO	2022	7007/ 004	AMCHO

OFFICE OF THE GENERAL COUNSEL — AMCGC

GENERAL COUNSEL	MR K M BARNES	2640	52081/52638	AMCGC
THE DEPUTY GENERAL COUNSEL	MR F X M KENNA	2638	74977/52467	AMCGC P
DEPUTY GENERAL COUNSEL/COMMAND STAFF JUDGE ADVOCATE	LTC C T LAKES	2630	70727/77538	AMCGC S
EXECUTIVE OFFICER	MR J K CAISER	2640	77977/52638	AMCGC A
ADVERSARY PROCEEDINGS DIVISION	MR J H VOGEL	2628	9865/72289	AMCGC B
MILITARY LAW/LEGAL SERVICES DIVISION	LTC C T LAKES	2630	70727/77538	AMCGC S
PATENT LAW DIVISION	MR H M SARAGOVITZ	C 303	782 1/78272	AMCGC L
PROCUREMENT LAW DIVISION	MR F X M KENNA	2638	4977/ 2467	AMCGC P

OFFICE OF THE CHAPLAIN — AMCCH

STAFF CHAPLAIN	COL F O HUNT JR	1060	73604/75754	AMCCH
DEPUTY STAFF CHAPLAIN	LTC G R YOUNG	1060	75754/73604	AMCCH
ASSISTANT STAFF CHAPLAIN	LTC P C JOHNSTON	1060	75 4/73604	AMCCH

INFORMATION OFFICE — AMCIN

INFORMATION OFFICER	COL R J BERENS	1062	78691/79824	AMCIN
ASSOCIATE INFORMATION OFFICER	MR D CRAIG	1062	78601/79824	AMCIN
COMMAND INFORMATION	MR G C BOBO	1065	50060/57 49	AMCIN-CI
COMMUNITY RELATIONS	LTC M G SHAHRABANI	1066	50521/52915	AMCIN CR
INDUSTRY PLANS & CLEARANCES	MR J J FOLEY	1067	76 15/ 9013	AMCIN IP
PUBLIC INFORMATION	MR J W PENTON JR	1063	71824/ 2558	AMCIN PI

SAFETY OFFICE — AMCSF

CHIEF	MR W C QUEEN	2000	70540/70625	AMCSF
ASSISTANT FOR AVIATION	MAJ H J BREM JR	2000B	70460/70529	AMCSF A
ASSISTANT FOR NUCLEAR & CB	MR S J PULLEY JR	2004	70270/70309	AMCSF N
ENGINEERING	MR A WALL	2000A	70540/70625	AMCSF E
HEALTH PHYSICS	MR D N TARAS	2001	70288/70642	AMCSF P
PROGRAM EVALUATION	MR H L DEANS	2001	70286/70287	AMCSF S
SYSTEMS & MATERIEL	MR H F WELLS	2006	70 31/70705	AMCSF D

AVIATION OFFICE — AMCAV

CHIEF	COL W B DYER	G 508	73748/73783	AMCAV
ASSISTANT CHIEF	LTC J J MIKUTA	G-512	73748/73863	AMCAV
FLIGHT STANDARDS OFFICER	(VACANCY)	C 512	73783/73863	AMCAV
OPERATIONS OFFICER	CW4 M W MILLER	G 512	73748/73863	AMCAV
PLANS OFFICER	MR G H WALTER JR	G 512	73783/73863	AMCAV
AIRCRAFT EQUIPMENT MANAGERS	MR J W DOWN	G 512	73783/73863	AMCAV
	MRS P MARLIN	G 512	73783/73863	AMCAV
ADMINISTRATIVE NCO	SSG R ESTES	C 12	73783/73863	AMCAV

SECURITY OFFICE — AMCSS

CHIEF	COL R W HOOKER	2203	70630/70859	AMCSS
EXECUTIVE OFFICER	MR I A OLSON	2203	70805/70859	AMCSS
INTELLIGENCE DIVISION	MR W H ANDERSON	2205	71239/71129	AMCSS I
PROVOST MARSHAL DIVISION	LTC W J LUCAS	204	0509/70207	AMCSS M

OFFICE OF THE SURGEON — AMCMM

SURGEON	COL R D WALLACE JR M D	1044F	74231/74240	AMCMM
CHIEF ENVIRONMENTAL HYG ENGR	LTC R M SHAW JR	1044F	74237/74231	AMCMM E
CHIEF OCCUPATIONAL MEDICINE	(VACANCY)	1044F	74237/74231	AMCMM O
INDUSTRIAL HYGIENIST	MR C J JORDAN	1044F	74237/74240	AMCMM I
SANITARY ENGINEER	CPT P D UPTON	1044F	74237/74231	AMCMM S

OFFICE OF THE INSPECTOR GENERAL — AMCIG

INSPECTOR GENERAL	COL D A PUGH	2090	72876/76874	AMCIG
ADMINISTRATIVE OFFICE	MRS F W JACKSON	2090	76874/72876	AMCIG A
INSPECTION DIVISION	LTC C N THOMAS	2307	59137/57951	AMCIG S
INVESTIGATIONS & COMPLAINTS DIVISION	COL R R RUSCHE	2091	77082/75088	AMCIG V
COORDINATION & CONTROL DIVISION	MR A J M MAHON	2109	59746/76831	AMCIG Y

PRODUCT/PROJECT MANAGERS — AMCPM

CHAPARRAL/VULCAN	COL W J ARNOLD JR	2229A	71719/72190	AMCPM CVADS
MAIN BATTLE TANK XM803	BG B R LUCZAK (Ret) (DY STA WARREN MI)		273 2189	AMCPM MBT
	LTC G J DJOUHY	2537	50008/53723	AMCPM MBT WF
SURFACE CONTAINER SUPPORTED DISTR SYS DEV	COL R A CRAMER JR	2013	53976/54897	AMCPM CS
MOBILE ELECTRIC POWER	COL J J ROCHEFORT JR	Ft Belvoir	192 33031	AMCPM MEP

MISCELLANEOUS NUMBERS

STAFF DUTY OFFICER	G 829	74206	
BUILDING ADMINISTRATOR	1048	52206/52223	OBM T7
CIVILIAN EMPLOYEE HEALTH SERVICE	1072	72370/70765	
CLASSIFIED MAIL CENTER	G 839	72892/72179	AMCAM AMC
LOCATOR SERVICE (MIL PERS)	1431	72635	AMCPT MR
LOCATOR SERVICE (CIV PERS)	G 440	73806	AMCPT-CO
MAIN GUARD OFFICE	1045	79533/78686	
EAST GATE		73220	
SIGNAL MESSAGE CENTER	C 832	74407/71487	AMXCD T
SPECIAL SECURITY OFFICE (SSO)	G 337	5373/79113	DAMI SG-GVP
TOP SECRET REPOSITORY	C 833	52849/71857	AMCAM AMT
UNCLASSIFIED MAIL CENTER	C 405	59 46/59547	AMCAM AMU
AMC OPERATIONS CENTER	1822	50451	
COMMAND CONFERENCE ROOM	1336	0465	

LIAISON

TO HEADQUARTERS, AMC

UNITED KINGDOM	LTC K RILEY REME	1835	54589/56563	AMCCS B
CANADA	LTC J C HENDERSON	1712	77691/50047	AMCCS-C
GERMANY	COL O H C WOHLFEIL	1716	50103/74961	AMCCS-G
MARINE CORPS	MAJ J R CURL USMC	1837	56563/54589	AMCCS F
USAMB	MRS R M LACKEY	2907	70878	AMCCS I

PROJECT MANAGER FIELD OFFICES

AAWS FIELD OFFICE	MR C F DAUSMAN DEP PROJ MGR	C 703	56868/56659	AMCPM AAWS
DESERET FIELD OFFICE	LTC D PEDERSON CHIEF	1052	57767/76725	AMCPM DE
2 75 ROCKET FIELD OFFICE	CPT J J DAVIDSON USN	1054	70959	AMCPM RK
SATCOMA FIELD OFFICE	LTC F F DALY CHIEF	1054	55341/70595	AMCPM SC
SENSOR MATERIEL OPERATIONS	COL J T ADINARO CHIEF	2314	72286	AMCPM SMO W
STARCOM FIELD OFFICE	MR J WILLIS CHIEF	1054	77772/74284	AMCPM-COM

FROM HEADQUARTERS, AMC, TO

AFSC SPACE AND MISSILES SYSTEMS ORGANIZATION*	MR P O MEARA	833 1306	AMXSS
HQ AF SYSTEMS COMMAND	MR J H PROCTOR	858 3227 Code 185 3227	AMXFA (SDOA)
INFANTRY CENTER FT BENNING GA *	COL R H ROBINSON	255 7071 255 2052	AMXLR
DOD PARACHUTE TESTING FACILITY*	CPT C L PATE	958-8666 958-8667	
US NAVAL WEAPONS CENTER	LTC G O'GRADY	898 1700 X3544 X3545	CODE 144
KIRTLAND AFB*	COL W C OHL	829-4822	AMCFO
WRIGHT PATTERSON AIR FORCE BASE*	MR M P HOGAN	78-52047	ASZL ARMY
US ARMY MATERIEL COMMAND FIELD SUPPORT ACTIVITY FORT HOOD/MASSTER FT HOOD TEXAS	LTC J H PHILLIPS	737 2131 X532-3217	AMXFS

*FOR MAILING ADDRESS MISSION INFO ETC CALL OR VISIT AMCRD PS TEL EXT 53127 RM 2706 BLDG T 7 GRAVELLY POINT VA

JANUARY 1972

THIS IS NOT AN OFFICIAL ORGANIZATION CHART

U.S. ARMY MATERIEL COMMAND

OCTOBER 1972

COMMANDING GENERAL	GENERAL H A MILEY, Jr	(OX 59154)
DEPUTY COMMANDING GENERAL	LTG W W VAUGHAN	(OX 59006)
DEPUTY FOR LABORATORIES	DR R B DILLAWAY	(OX 53596)
DEPUTY CG FOR MATERIEL ACQUISITION	MG J R GUTHRIE	(OX 55217)
DEPUTY CG FOR LOGISTICS SUPPORT	MG T ANTONELLI	(OX 54892)
CHIEF OF STAFF	MG C T HORNER Jr	(OX 59105)
DEP CHIEF OF STAFF & SECY OF THE GEN STAFF	COL O J HARRISON	(OX 59576)
COMMAND SERGEANT MAJOR	CSM D E TENNOW	(OX 76764)

COMPTROLLER
BG H E HALLGREN
PROGRAMS BUDGETS FUND ALLOCATIONS FINANCIAL CONTROLS ACCOUNTING SYSTEMS MANAGEMENT AND ECONOMIC ANALYSIS WORK MEASUREMENT REVIEW AND ANALYSIS COST ANALYSIS COST REDUCTION AND INTERNAL REVIEW AND AUDIT COMPLIANCE
OX 78 3

DIRECTORATE FOR PERSONNEL TRAINING AND FORCE DEVELOPMENT
BG R L KIRWAN
MILITARY AND CIVILIAN PERSONNEL MANAGEMENT MANPOWER TRAINING AND ORGANIZATION AND MISSION PLANS
OX 78

DIRECTORATE FOR PLANS AND ANALYSIS
COL J W BRENNAN
COMMAND PLANNING SYSTEMS ANALYSIS MISSION AND ORGANIZATION STUDIES CONTROL AND ENVIRONMENTAL CONTROL
OX 0592

DIRECTORATE FOR MANAGEMENT INFORMATION SYSTEMS
MR J C GILBERT
CONCEPTS OBJECTIVES POLICIES PLANS PROJECTS AND PROGRAMS RELATING TO AUTOMATIC DATA PROCESSING AND MANAGEMENT INFORMATION SYSTEMS
OX 56 00

HEADQUARTERS

DIRECTORATE FOR INSTALLATIONS AND SERVICES
COL C YOUNG
MASTER PLANNING REAL ESTATE CONSTRUCTION REPAIRS AND UTILITIES FAMILY HOUSING COMMUNICATIONS ELECTRONICS EQUIPMENT MANAGEMENT SUPPORT SERVICES
OX 55486

DIRECTORATE FOR QUALITY ASSURANCE
MR S J LORBER
TOTAL QUALITY SYSTEM FOR AMC INTEGRATING METROLOGY CALIBRATION RELIABILITY PRODUCT TESTING QUALITY CONTROL PRODUCT INSPECTION AND VALUE ENGINEERING
OX 77907

DIRECTORATE FOR RESEARCH DEVELOPMENT AND ENGINEERING
MG S C MEYER
RESEARCH DEVELOPMENT TEST AND EVALUATION TECHNICAL INTELLIGENCE AND PRODUCT AND PRODUCTION ENGINEERING
X /4128

DIRECTORATE FOR REQUIREMENTS AND PROCUREMENT
MG F A HINRICHS
LOGISTICS MANAGEMENT INCLUDING REQUIREMENTS DETERMINATION BUDGETING PROGRAMING REBUILD AND DISPOSAL DIRECTION AND DISTRIBUTION MANAGEMENT PROCUREMENT AND PRODUCTION SMALL BUSINESS AND INDUSTRIAL READINESS PLANNING
OX / 714

DIRECTORATE FOR SUPPLY
MG H R HIGGINS
SUPPLY MANAGEMENT INCLUDING STOCK CONTROL STORAGE PACKAGING DISTRIBUTION TRANSPORTATION AND CATALOGING STOCK FUND MATERIEL READINESS AND DESIGNATED READINESS IMPROVEMENT PROGRAMS (DARCOM ITEMS IN SUPPORT OF ARMY
OX 5054

DIRECTORATE FOR INTERNATIONAL LOGISTICS
BG W C MAGATHAN JR
POLICIES PROGRAM GOALS AND OBJECTIVES FOR ALL INTERNATIONAL LOGISTICS PROGRAMS
OX 456 0

DIRECTORATE FOR MAINTENANCE
BG E J D AMBROSSIO
ARMY MATERIEL MAINTENANCE ACTIVITIE
OX 5001

OFFICE OF LOGISTIC ASSISTANCE
COL P R WHITE
(0

OFFICE OF PROJECT MANAGEMENT
COL J P HAUMERSEN
OX 770

EQUAL EMPLOYMENT OPPORTUNITY OFFICER
MR SCHWARTZ
(X 1 1 1

SURVEILLANCE TARGET ACQUISITION AND NIGHT OBSERVATION (STANO) AND SELECTED SYSTEMS OFFICE
COL J H W INSKEEP
OX 1 11

OFFICE OF DEPOT MANAGEMENT
COL R A READE
OX 6

SPECIAL ASSISTANTS

TECHNICAL RELATIONS ADVISOR	MR H HANDLER	OX 59582
NUCLEAR AFFAIRS	MR J L CHAMBERLIN	OX 59739
EOD OFFICE	MAJ H E WARREN JR	OX 67530
CONGRESSIONAL AFFAIRS	MR P CYR	OX 50505
JOINT ACTIVITIES COORDINATOR	COL J A THOMAS	OX 73373
CHEMICAL AND BIOLOGICAL AFFAIRS	COL J AARON	OX 52762

AVIATION OFFICE
COL G J BOYLE III
(X / 1 18

INFORMATION OFFICER
COL R J BERENS
OX 78 11

HEADQUARTERS ADMINISTRATIVE MANAGEMENT OFFICE
COL J P CAHILL
OX 111

SAFETY OFFICE
MR W G QUEEN
OX 70 40

HISTORICAL OFFICE
DR D BIRDSELL
OX 57004

SECURITY OFFICE
COL W N ISRAEL
OX 70630

OFFICE OF THE GENERAL COUNSEL
MR K M BARNES
OX 5 1 1

OFFICE OF THE SURGEON
COL R D WALLACE JR M D
OX /4237

OFFICE OF THE CHAPLAIN
COL W V O CONNOR
OX 7 764

OFFICE OF THE INSPECTOR GENERAL
COL J H BURKE
OX 2 1

MAJOR SUBORDINATE COMMANDS

COMMAND HEADQUARTERS

U S ARMY AVIATION SYSTEMS COMMAND
ST LOUIS MO
MG F KORNET JR
INTEGRATED COMMODITY MANAGEMENT OF AERONAUTICAL AND AIR DELIVERY EQUIPMENT AND OF TEST EQUIPMENT THAT IS A PART OF OR USED WITH ASSIGNED MATERIEL BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 631616
AREA CODE 3114
TEL 268 2201
AUTOVON 698 XXXX

U S ARMY MISSILE COMMAND
REDSTONE ARSENAL ALA
MG E I DONLEY
INTEGRATED COMMODITY MANAGEMENT OF FREE ROCKETS GUIDED MISSILES BALLISTIC MISSILES TARGET MISSILES AIR DEFENSE MISSILE FIRE COORDINATION EQUIPMENT RELATED SPECIAL PURPOSE AND MULTI SYSTEM TEST EQUIPMENT AND TEST EQUIPMENT WHICH IS A PART OF OR USED WITH ASSIGNED MATERIEL MISSILE LAUNCHING AND GROUND SUPPORT EQUIPMENT MISSILE FIRE CONTROL EQUIPMENT AND OTHER ASSOCIATED EQUIPMENT BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 35809
AREA CODE 205
TEL 876 0011
AUTOVON 46 XXXX

U S ARMY ELECTRONICS COMMAND
FORT MONMOUTH N J
MG H P FOSTER JR
INTEGRATED COMMODITY MANAGEMENT OF COMMUNICATIONS EQUIPMENT COMMUNICATIONS ELECTRONICS INTELLIGENCE EQUIPMENT ELECTRONIC WARFARE AVIATION ELECTRONICS COMBAT SURVEILLANCE TARGET ACQUISITION AND NIGHT VISION EQUIPMENT PHOTOGRAPHIC AND MICROFILMING IDENTIFICATION FRIEND OR FOE SYSTEMS AUTOMATIC DATA PROCESSING RADAR *(EXCLUDING THAT USED IN FIRE CONTROL AND FIRE COORDINATION OF AIR DEFENSE SYSTEMS ASSIGNED TO ANOTHER COMMAND FOR MANAGEMENT)* METEROLOGICAL AND ELECTRONIC RADIOLOGICAL DETECTION MATERIEL ASSIGNED BATTERIES AND ELECTRIC POWER GENERATION EQUIPMENT DETERMINE VULNERABILITY OF ARMY MISSILES AND COMMUNICATIONS ELECTRONIC EQUIPMENT AND SYSTEMS TO ELECTRONIC COUNTER MEASURES (ECM) AND DETERMINE REQUIREMENTS FOR ECM SUBSYSTEMS AND TECHNIQUES TO INCREASE ARMY MISSILE SYSTEM EFFECTIVENESS AND TEST *EQUIPMENT WHICH IS A PART OF OR USED WITH* ASSIGNED MATERIEL AND ELECTRONIC PARTS AND MATERIALS COMMON TO ELECTRONIC MATERIEL THROUGHOUT THE ARMY BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 07703
AREA CODE 201
TEL 532 5000
ITOVON 1 0

U S ARMY TANK AUTOMOTIVE COMMAND
WARREN MICH
MG J E PIEKLIK
INTEGRATED COMMODITY MANAGEMENT OF TACTICAL WHEELED AND GENERAL PURPOSE VEHICLES AND TEST EQUIPMENT WHICH IS A PART OF OR USED WITH ASSIGNED MATERIEL BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 48090
AREA CODE 313
TEL 573 1000
AUTOVON 273 1101

U S ARMY MOBILITY EQUIPMENT COMMAND
ST LOUIS MO
MG J C RAAEN JR
INTEGRATED COMMODITY MANAGEMENT OF SURFACE TRANSPORTATION EQUIPMENT *(OTHER THAN TACTICAL WHEELED AND GENERAL PURPOSE VEHICLES)* MAPPING AND GEODOSY EQUIPMENT FOR THE FIELD ARMIES ASSIGNED ELECTRIC POWER GENERATION EQUIPMENT CONSTRUCTION AND SERVICES EQUIPMENT BARRIER EQUIPMENT *(INCLUDING MINE WARFARE AND DEMOLITIONS EQUIPMENT* BRIDGING AND STREAM CROSSING EQUIPMENT PETROLEUM HANDLING AND DISPENSING EQUIPMENT GENERAL SUPPORT EQUIPMENT AND SUPPLIES *(FIR FIGHTING INDUSTRIAL ENGINES HEATING AND A R CONDITIONING WATER PURIFICATION MATERIALS HANDLING ETC)* TEST EQUIPMENT THAT IS A PART OF OR USED WITH ASSIGNED MATERIEL BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 63120
AREA CODE 314
TEL AM 3110
AUTOVON 693 1110

U S ARMY MUNITIONS COMMAND
DOVER N J
MG E M GRAHAM JR
INTEGRATED COMMODITY MANAGEMENT OF NUCLEAR AND NONNUCLEAR AMMUNITION ROCKET AND MISSILE WARHEAD SECTIONS DEMOLITION MUNITIONS MINES BOMBS GRENADES PYROTECHNICS BOOSTERS JATO s AND GAS GENERATORS RADIOLOGICAL MATERIEL PROPELLANT ACTUATED DEVICES TEST EQUIPMENT THAT IS A PART OF OR USED WITH ASSIGNED MATERIEL CLIPS LINKS AND FACTORY LOADED MAGAZINES FOR NONNUCLEAR AMMUNITION AND RELATED COMPONENTS AND EQUIPMENT BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT

MAJOR COMMODITY CENTERS
USA AMMO PROC & SUP GCY JOLIET ILL
BG P G OLENCHUK
EDGEWOOD ARSENAL MD COL J K STONER JR
FRANKFORD ARSENAL PHILA PA COL J L WALLACE
PICATINNY ARSENAL DOVER N J
COL G M MONTGOMERY
ZIP CODE 07801
AREA CODE 201
TEL 328 2121
AUTOVON 880 12

U S ARMY TEST & EVALUATION COMMAND
ABERDEEN PG MD
MG C P BROWN
ENGINEERING *(EXCEPT AIRCRAFT PERFORMANCE STABILITY AND CONTROL)* AND SERVICE TESTS AND EVALUATIONS SUPPORT ENGINEER DESIGN PRODUCTION AND POST PRODUCTION TESTS AND PARTICIPATION IN TROOP TEST PLANNING MANAGE AND OPERATE A NATIONAL MISSILE RANGE AT WSMR NEW MEXICO
ZIP CODE 21005
AREA CODE 301
TEL 278 3672
AUTOVON 870 XXXX

U S ARMY WEAPONS COMMAND
ROCK ISLAND ILL
MG H A RASMUSSEN
INTEGRATED COMMODITY MANAGEMENT OF WEAPONS INCLUDING ARTILLERY WEAPONS CREW SERVED WEAPONS AND AIRCRAFT WEAPON SYSTEMS COMBAT VEHICLES FIRE CONTROL EQUIPMENT *(EXCLUDING THAT INTEGRAL TO MISSILE SYSTEMS AND AIR DEFENSE FIRE COORDINATION SYSTEMS)* COMMON TYPE TOOLS AND COMMON TYPE TOOL AND SHOP SETS *(EXCLUDING DSA AND GSA ITEMS)* AND TEST EQUIPMENT THAT IS A PART OF OR USED WITH ASSIGNED MATERIEL BASIC AND APPLIED RESEARCH CONCERNING ASSIGNED MATERIEL DEVELOPMENT
ZIP CODE 61201
AREA CODE 309
TEL 794 6001
AUTOVON 793 1110

U S ARMY SAFEGUARD LOGISTICS COMMAND
HUNTSVILLE ALA
COL H F HARDIN JR
PROVIDES LOGISTIC SUPPORT *(EXCEPT FOR NUCLEAR MUNITIONS AUXILIARY EQUIPMENT OR COMSEC DESIGN CONTROLLED SECONDARY ITEMS)* TO TACTICAL SAFEGUARD SITES UNDER THE GUIDANCE AND DIRECTION OF THE SAFEGUARD SYSTEM MANAGER AND ACCOMPLISHES ASSIGNED MATERIEL FUNCTIONS WITHIN NORMAL RESPONSIBILITIES OF AMC SUBORDINATE COMMODITY COMMANDS THE SAFLOG IS CHARGED WITH DEVELOPING WITHIN APPROVED CONCEPTS AND PLANS THE LOGISTICS SYSTEM FOR SUPPORT OF THE DEPLOYED SAFEGUARD SYSTEM
ZIP CODE 35804
AREA CODE 205
TEL 895 3440
AUTOVON 4 3330

INSTALLATIONS AND ACTIVITIES

U S ARMY AVIATION SYSTEMS COMMAND
USA AERONAUTICAL DEPOT MAINT CEN
CORPUS CHRISTI TX
USA AVN SYS TEST ACTV EDWARDS AFB CA
USA AIR MOBILITY RSCH & DEV LAB
AMES RSCH CEN MOFFETT FIELD CA
USA TRANS CORPS BN CORPUS
CHRISTI TX
USAMC MATERIEL GP No 1
CORPUS CHRISTI TX

INDUSTRIAL PLANTS
SAGINAW ARMY AIRCRAFT PLANT FT WORTH TX
USA BELL PLANT ACTV HURST TX
USA BOEING VERTOL PLANT ACTV
PHILADELPHIA PA
USA GRUMMAN PLANT ACTV STUART FL
USA HUGHES PLANT ACTV
CULVER CITY CA
USA LOCKHEED PLANT ACTV
VAN NUYS CA

NATIONAL MAINTENANCE POINT
U S ARMY AVIATION SYSTEMS COMMAND ST LOUIS MO
NATIONAL INVENTORY CONTROL POINT
U S ARMY AVIATION SYSTEMS COMMAND ST LOUIS MO

U S ARMY MISSILE COMMAND
METROLOGY & CALIBRATION CEN
REDSTONE ARS AL
MISSILE INTELLIGENCE AGCY
REDSTONE ARS AL

INDUSTRIAL PLANTS
LAWNDALE ARMY MSL PLANT LAWNDALE CALIF
MICHIGAN ARMY MSL PLANT WARREN MICH
TARHEEL ARMY MSL PLANT BURLINGTON N C

NATIONAL MAINTENANCE POINT
U S ARMY MISSILE COMMAND REDSTONE ARSENAL ALA
NATIONAL INVENTORY CONTROL POINT
U S ARMY MISSILE COMMAND REDSTONE ARSENAL ALA

U S ARMY ELECTRONICS COMMAND
USA RESEARCH & DEVELOPMENT TECH SPT ACTV FT MONMOUTH NJ
ELECTRONICS TECHNOLOGY & DEVICES LAB FT MONMOUTH NJ
USA COMBAT SURVEILLANCE & TARGET ACQUISITION LAB FT MONMOUTH N J
USA COMMUNICATIONS & ADP LAB FT MONMOUTH N J
USA ATMOSPHERIC SCIENCES LAB
WHITE SANDS MISSILE RANGE N M
USA ELECTRONICS WARFARE LAB FT MONMOUTH N J
USA AVIONICS LAB FT MONMOUTH N J
USA NIGHT VISION LAB FT BELVOIR VA
USA TV AUDIO SPT AGCY SACRAMENTO ARMY DEPOT SACRAMENTO CALIF

NATIONAL MAINTENANCE POINT
U S ARMY ELECTRONICS COMMAND FT MONMOUTH N J
NATIONAL INVENTORY CONTROL POINT
U S ARMY ELECTRONICS COMMAND FT MONMOUTH N J

U S ARMY TANK AUTOMOTIVE COMMAND
USA MODIFICATION CENTER
LIMA OHIO
USA MOBILITY SYSTEMS LAB
WARREN MICH

INDUSTRIAL PLANTS
MUSKEGON ARMY ENGINE PLANT
MUSKEGON MICH

NATIONAL MAINTENANCE POINT
U S ARMY TANK AUTOMOTIVE COMMAND WARREN MICH
NATIONAL INVENTORY CONTROL POINT
U S ARMY TANK AUTOMOTIVE COMMAND WARREN MICH

U S ARMY MOBILITY EQUIPMENT COMMAND
USA MOBILITY EQUIP RSCH & DEV CEN
FT BELVOIR VA

NATIONAL MAINTENANCE POINT
U S ARMY MOBILITY EQUIPMENT COMMAND ST LOUIS MO
NATIONAL INVENTORY CONTROL POINT
U S ARMY MOBILITY EQUIPMENT COMMAND ST LOUIS MO

U S ARMY MUNITIONS COMMAND
PINE BLUFF ARSENAL PINE BLUFF ARK
ROCKY MOUNTAIN ARSENAL DENVER COLO

ARMY AMMUNITION PLANTS

ALABAMA	LOUISIANA SHREVEPORT LA
CHILDERSBURG AL	MILAN MILAN TN
BADGER BARABOO WI	NEWPORT
BURLINGTON	NEWPORT IN
BURLINGTON NJ	PHOSPHATE DEV WORKS
CORNHUSKER	MUSCLE SHOALS AL
GRAND ISLAND NB	RADFORD RADFORD VA
GATEWAY ST LOUIS MO	RAVENNA RAVENNA OH
HAYS PITTSBURGH PA	RIVERBANK RIVER BANK
HOLSTON KINGSPORT TN	CA
INDIANA CHARLESTOWN IN	ST LOUIS ST LOUIS MO
IOWA BURLINGTON IA	SCRANTON SCRANTON PA
JOLIET JOLIET IL	SUNFLOWER LAWRENCE
KANSAS PARSONS KS	KS
LAKE CITY	TWIN CITIES MINNEAPOLIS
INDEPENDENCE MO	MN
LONE STAR	VOLUNTEER
TEXARKANA TX	CHATTANOOGA TN
LONGHORN MARSHALL TX	

U S ARMY TEST & EVALUATION COMMAND
USA ABERDEEN PG ABERDEEN MD
USA JEFFERSON PG MADISON IND
USA ABN COMM & ELECT BD FT BRAGG N C
USA AIR DEF BD FT BLISS TEX
USA ARCTIC TEST CENTER FT GREELY ALASKA
USA ARMOR AND ENGINEER BD FT KNOX KY
USA AVN TEST BD FT RUCKER ALA
USA ELECT PG FT HUACHUCA ARIZ
USA FIELD ARTILLERY BD FT SILL OKLA
USA GENERAL EQUIP TEST ACTIV FT LEE VA
USA INF BD FT BENNING GA
USA TROPIC TEST CENTER FT CLAYTON CZ
USA WHITE SANDS MSL RANGE N MEX
USA YUMA PG YUMA ARIZ

U S ARMY WEAPONS COMMAND
ROCK ISLAND ARSENAL ROCK ISLAND ILL
WATERVLIET ARSENAL WATERVLIET N Y
WEAPONS LAB USAWECOM ROCK ISLAND ILL

INDUSTRIAL PLANTS
CLEVELAND ARMY TANK AUTMV PLANT CLEVELAND OHIO

NATIONAL MAINTENANCE POINT
U S ARMY WEAPONS COMMAND ROCK ISLAND ILL
NATIONAL INVENTORY CONTROL POINT
U S ARMY WEAPONS COMMAND ROCK ISLAND ILL

U S ARMY SAFEGUARD LOGISTICS COMMAND
USA DEPOT SAFEGUARD
GLASGOW MONTANA

NATIONAL MAINTENANCE POINT
U S ARMY SAFEGUARD LOGISTICS COMMAND
HUNTSVILLE ALA
NATIONAL INVENTORY CONTROL POINT
U S ARMY SAFEGUARD LOGISTICS COMMAND
HUNTSVILLE ALA

OTHER INSTALLATIONS AND ACTIVITIES

PROJECT/PRODUCT MANAGERS
LOCATED AT HEADQUARTERS AMC

CHAPARRAL/VULCAN	COL W J ARNOLD JR	OX 72190
SUR CONTAINER SUP DISTR SYS DEV	COL R A CRAMER JR	OX 53976

LOCATED OUTSIDE HEADQUARTERS AMC

ADVANCED ATTACK HELICOPTER	BG H H BOLZ JR	St Louis MO	698 2927
AIRCRAFT ELECTRONIC WARFARE SELF PROTECTION SYSTEM (AEWPS)	COL S SHIREY	St Lo MO	698 3961
ARMORED RECON SCOUT VEHICLE	COL E L BIRK	War e MI	273 2208
ARMY AREA COMMUNICATIONS SYSTEMS	COL J P DOBBINS	Ft Mo mo th NJ	995 2109
ARMY TACTICAL DATA SYSTEMS	BG A B CRAWFORD JR	Ft Mo m th NJ	992 4612
BOMBS & EXPLOSIVES	COL G R BLAHA	Dove NJ	880 3150
CANNON ARTILLERY WEAPONS SYS	COL S T POST JR	Rock Island IL	793 6626
COBRA (AH 1G)	LTC O E GONZALES	St Lo is MO	698 2331
DCS (ARMY) STRATEGIC COMMUNICATIONS SYSTEM	BG D W OGDEN JR	Ft M m th NJ	995 1582
DESERET	CPT W L ALTUSNI	Fort Do gl UT	924 4123
DRAGON	COL J M SHEA	Redsto e Ars AL	746 7194
FAMECE AND UET	COL G R RELYEA	Ft Bel o VA	192 41116
HAWK	COL H A BUZZETT	Redsto A AL	746 5609
HEAVY LIFT HELICOPTER	COL W M MCKEOWN	St Lo s MO	698 5464
LANCE	BG R J PROUDFOOT	Redsto Ar AL	746 6144
LIGHT OBSERVATION HELICOPTER	COL J E BAKER	St Lo MO	698 3741
M 60 TANK SERIES	COL S A SHERIDAN	Wa e MI	273 2720
M 561 (XM852 TRUCKS	LTC O M BABERS	War en MI	369 2638
XM815 TANK SYSTEM	BG R J BAER	Wa MI	273 2662
MANNED AERIAL SURVEILLANCE & TARGET ACQUISITION SYS	COL J A LOVE	St Lo MO	698 3995
MECHANIZED INFANTRY COMBAT VEHICLE	LTC P B KENYON	Warren MI	273 1630
MOBILE ELECTRIC POWER	COL J J ROCHEFORT JR	Ft Bel o VA	192 43631
MORTAR/ARTILLERY LOCATING RADARS	LTC W J HARRISON	Ft Monmo th NJ	996 1324
MUNITIONS PRODUCTION BASE MODERNIZATION & EXPANSION	COL W D WARD	Dove NJ	880 3040
NAVIGATION CONTROL	LTC C W M DOWELL	Ft Mo mo th NJ	992 4240
PERSHING	COL S C SKEMP JR	Redsto e Ars AL	746 1165
Z 75 ROCKET SYSTEM	COL E J HEIM	Dove NJ	880 2925
REMOTELY MONITORED BATTLEFIELD SENSOR SYSTEMS	LTC R J COTTEY	Ft Mo mo th NJ	992 2541
SAFEGUARD MUNITIONS	COL A A NORD	Do e NJ	880 5285
SAM D	BG J C FIMIANI	Redstone A s AL	746 3201
SATCOM	COL L D WAMSTED	Ft Mo mo th NJ	992 1228
SELECTED AMMUNITION	COL K E LOCKWOOD	Do e NJ	880 3230
STINGER	COL D H SOUSER	Redsto A AL	746 6191
TOW	COL R W HUNTZINGER	Red t A s AL	746 5185
UTILITY AIRCRAFT	BG L D TURNER	St Lo s MO	698 3831
VEHICLE RAPID FIRE WEAPONS SYSTEM	COL R W NOCE	Rock I l d IL	793 6852

SEPARATE INSTALLATIONS AND ACTIVITIES UNDER HEADQUARTERS AMC

ARMY MATERIALS & MECHANICS RSCH CEN WATERTOWN MASS	684 8XXX
HARRY DIAMOND LABS WASHINGTON D C	286 XXXX
HQ AMC SERVICE SUPPORT AGENCY WASHINGTON D C	OX 50591
JOINT MIL PACKAGING TNG CEN ABERDEEN MD	870 XXXX
NATICK LABS NATICK MASS	955 XXXX
USA ADVANCED MATERIEL CONCEPTS AGENCY ALEXANDRIA VA	221 0186
USA BALLISTIC RSCH LABS ABERDEEN PG MD	870 3981
USA CATALOG DATA AGCY NEW CUMBERLAND PA	977 6603
USA EQUIP AUTHORIZATIONS REV CEN FT BELVOIR VA	354 1904
USA FIELD OFC HQ AFSC WASHINGTON D C	858 3227
USA FGN SCIENCE & TECH CEN CHARLOTTESVILLE VA	274 7587
USA HUMAN ENGINEERING LAB ABERDEEN PG MD	870 3883
USA INTERNATIONAL LOGISTICS CEN NEW CUMBERLAND PA	977 6800
USA LOGISTIC ASSISTANCE OFFICE CONUS	680 2230
USA LOGISTIC ASSISTANCE OFFICE EUROPE	8888 (HEIDELBERG)
USA LOGISTIC ASSISTANCE OFFICE KOREA	3174 (YONGSAN)
USA LOGISTIC ASSISTANCE OFFICE PACIFIC	862715 (HAWAII)
USA LOGISTIC ASSISTANCE OFFICE JAPAN	51144 (OKINAWA)
USA LOGISTIC ASSISTANCE OFFICE SOUTHEAST ASIA (AMC)	923 4329
USA LOGISTIC CONTROL OFC ATLANTIC NEW CUMBERLAND PA	977 7109
USA LOGISTIC CONTROL OFC PACIFIC FORT MASON CA	586 6995
USA LOGISTICS MGT CENTER FT LEE VA	687 6408
USA MAINTENANCE BOARD FT KNOX KY	464 7156
USA MAJOR ITEM DATA AGCY CHAMBERSBURG PA	242 6490
USA MGT ENGR TNG AGCY ROCK ISLAND ILL	793 6043
USA MATERIEL SYSTEMS ANALYSIS AGCY ABERDEEN MD	870 2432
USA SCIENCE & TECH CEN FAR EAST CAMP DRAKE JAPAN	3688 (TOKYO)
USA SCIENTIFIC & TECH INFO TEAM EUROPE	7564 (FRANKFURT)
USA TNG DEV AGCY USN TNG EQUIP CEN ORLANDO FL	791 5292
USA PDN EQUIP AGCY ROCK ISLAND ILL	793 5010
USA SMALL ARMS SYSTEMS AGCY ABERDEEN PROVING GROUND MD	870 5241
USA SPT CEN RICHMOND VA	695 4747
USAMC AMMO CEN SAVANNA ILL	585 XXXX
USAMC AUTO LOG MGT SYS AGENCY ST LOUIS MO	698 6044
USAMC FLD OFC KIRTLAND AFB ALBUQUERQUE N MEX	829 4822
USAMC FLD SAFETY AGCY CHARLESTOWN IND	726 1480
USAMC FLD SPT ACTIVITY FORT HOOD/MASSTER FORT HOOD TEX	737 2131
USAMC IG ATLANTA FLD OFC FOREST PARK GA	797 5781
USAMC IG ST LOUIS FLD OFC ST LOUIS MO	693 3440
USAMC INFANTRY R&D LIAISON OFFICE FT BENNING GA	835 2052
USAMC INSTL & SVC AGCY ROCK ISLAND ILL	793 5018
USAMC LOGISTIC DATA CENTER LEXINGTON KY	745 3836
USAMC LOGISTICS SYS SPT AGCY CHAMBERSBURG PA	242 6389
USAMC MAINTENANCE SPT CEN CHAMBERSBURG PA	242 7130
USAMC PERSONNEL SPT AGCY WASHINGTON D C	OX 78082
USAMC QUALITY ASSURANCE FIELD OFC LEXINGTON KY	745 7591
USAMC SECURITY SPT AGCY FOREST PARK GA	797 7301
USAMC SURETY FIELD OFFICE DOVER N J	880 5196
USAMC TAIWAN MATERIEL AGCY TAIPEI TAIWAN	723 2351

ARMY DEPOTS

ANNISTON ANNISTON ALA	694 XXXX
ATLANTA FOREST PARK GA	797 XXXX
CHARLESTON N CHARLESTON S C	630 1450
LETTERKENNY CHAMBERSBURG PA	242 XXXX
LEXINGTON BLUE GRASS LEXINGTON KY	745 XXXX
NEW CUMBERLAND HARRISBURG PA	977 6100
PUEBLO PUEBLO COLO	877 XXXX
RED RIVER TEXARKANA TEX	956 XXXX
SACRAMENTO SACRAMENTO CALIF	839 XXXX
SAVANNA SAVANNA IL	585 XXXX
SENECA ROMULUS N Y	489 8XXX
SHARPE LATHROP CALIF	462 2011
SIERRA HERLONG CALIF	830 2XXX
TOBYHANNA TOBYHANNA PA	247 9XXX
TOOELE TOOELE UTAH	790 2XXX
UMATILLA HERMISTON OREGON	891 3201

ARMY CLASS MANAGER ACTIVITIES

USA GEN MATERIEL & PARTS CEN HARRISBURG PA	977 7203
USA PETRL CEN ALEXANDRIA VA	284 7506
USA SUP CEN PHILA PA	444 2500

MAJOR AMC PROCUREMENT ACTIVITIES

PROCUREMENT AGENCIES
USA SAN FRANCISCO PROCUREMENT AGENCY
OAKLAND CALIF

PROCUREMENT OFFICES
USA AVIATION SYSTEMS COMMAND ST LOUIS MO
USA ELECT COMD DIRECT OF PROC & PROD
PHILA PROC DIV FT MEADE PROC DIV
FT MONMOUTH PROC DIV WASH PROC DIV
USA MISSILE COMD REDSTONE ARS ALA
USA MOBILITY EQUIPMENT COMD ST LOUIS MO
USA MUNITIONS COMMAND DOVER N J
EDGEWOOD ARS EDGEWOOD MD
FRANKFORD ARS PHILA PA
PICATINNY ARS DOVER N J
USA TANK AUTOMV COMD WARREN MICH
USA WEAPONS COMD ROCK ISLAND ILL
ROCK ISLAND ARS ROCK ISLAND ILL
WATERVLIET ARS WATERVLIET N Y

MISSION
U.S. ARMY MATERIEL COMMAND

Manage the wholesale materiel activities of the Army

Provide supply and maintenance support to the Army - and to other customers

Assist in the formulation of the Army material program and implement the program

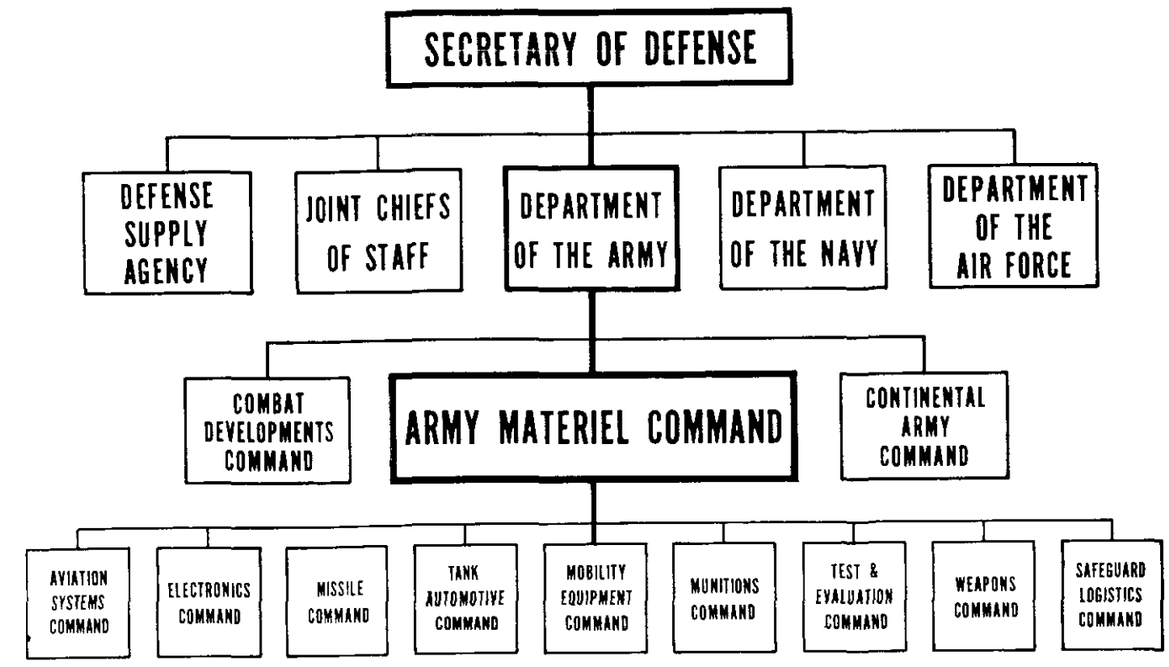
MAJOR SUBORDINATE COMMAND MISSION RESPONSIBILITIES

The primary mission responsibilities of the Major Subordinate Commands for the commodity items reflected on the inside of this guide are indicated below

MISSIONS RESPONSIBILITY / MAJOR SUBORDINATE COMDS	AVIATION SYSTEMS	ELECTRONICS	MISSILE	TANK AUTOMOTIVE	MOBILITY EQUIPMENT	MUNITIONS	TEST AND EVALUATION	WEAPONS	SAFEGUARD LOGISTICS
RESEARCH	X	X	X	X	X	X		X	
DESIGN	X	X	X	X	X	X		X	
DEVELOPMENTAL TESTING	X	X	X	X	X	X		X	
CATALOGING & STANDARDIZATION	X	X	X	X	X	X		X	X
MAINTENANCE ENGINEERING	X	X	X	X	X	X		X	X
PROCUREMENT	X	X	X	X	X	X		X	X
PRODUCT & PRODUCTION ENGINEERING	X	X	X	X	X	X		X	X
INDUSTRIAL MOBILIZATION	X	X	X	X	X	X		X	
NEW EQUIPMENT TRAINING	X	X	X	X	X	X		X	
WHOLESALE INVENTORY MANAGEMENT	X	X	X	X	X	X		X	X
TECHNICAL ASSISTANCE	X	X	X	X	X	X		X	X
SUPPLY & FINANCIAL MANAGEMENT	X	X	X	X	X	X	X	X	X
ENGINEERING & SERVICE TESTS							X		
MATERIEL EVALUATIONS							X		
POST-PRODUCTION TEST SUPPORT							X		
TROOP TESTS (PARTICIPATION)							X		
RETAIL INVENTORY MANAGEMENT									X

A GUIDE to the*

ARMY MATERIEL COMMAND ORGANIZATION & MISSIONS



Headquarters
United States Army Materiel Command
Bldg T-7
Washington, D C 20315
Cable Address - CGUSAMC

* Charts shown are not official o ganization charts

OCTOBER 1972

AMC was established 8 May 1962 The Command became operational 1 August 1962 and observes its anniversary on that date It is responsible for the materiel functions formerly performed by six of the Army s seven technical services (Ordnance Signal Quartermaster Engineer Transportation and Chemical) including research and development test and evaluation procurement and production storage and distribution inventory management maintenance and disposal

The US Army Materiel Command has management responsibility for an inventory of approximately $12 billion on hand in depots in Continental United States $6 billion on order from procurement and $16 billion in ammunition and other major items in the hands of troops or overseas depots and an annual expenditure of approximately $9 billion It directly employs 11 800 military and 140 600 civilian personnel

With headquarters in the Washington DC area AMC operates through nine major subcommands and directs the activities of depots laboratories arsenals maintenance shops proving grounds test ranges and procurement offices throughout the United States

AMC headquarters furnishes over all policy direction of its far flung operations The major subordinate commands serve as the mid management level The individual installations and activities accomplish the actual execution of the Army s materiel program AMC also makes maximum use of vertical management techniques using project and product managers to expedite development production and delivery of 38 selected major or critical weapons (equipment) systems

The nine AMC major subordinate commands including seven commodity type commands responsible for research development production and procurement in their assigned commodity areas one test and evaluation command and one logistics support type command are listed below

US Army Aviation Systems Command (AVSCOM) with headquarters at St Louis MO is responsible for Army aviation design research development maintenance engineering stock and supply control and aerial delivery equipment It consists of approximately 9 800 military and civilian personnel The command directs the US Army Air Mobility Research and Development Laboratory with headquarters at NASA Ames Research Center Moffett Field CA the Army Aeronautical Depot Maintenance Center (AAAMC) at Corpus Christi TX the Army Aviation Systems Test Activity (ASTA) at Edwards Air Force Base CA and Army Aviation Plant Activities at Stuart FL Fort Worth TX Culver City and Van Nuys CA and Morton PA It is also responsible for aeronautical maintenance missions at Atlanta New Cumberland Red River and Sharpe Army Depots

US Army Electronics Command (ECOM) with headquarters at Fort Monmouth NJ is responsible for managing the entire life cycle of research development procurement and fielding of communications avionics radar radiac automatic data processing meteorology night vision combat surveillance target acquisition air traffic management navigation and electronic warfare equipment and systems as well as test equipment and electrical power sources It is the Army s prime center for R&D in electronic parts and materials The ECOM mission includes the integrated logistic support of equipment and systems at all levels of maintenance for their overall life cycle ECOM has military and civilian personnel strength of approximately 11 600 Members of the ECOM team military and civilian are located at some 25 locations throughout the world

US Army Missile Command (MICOM) with headquarters at Redstone Arsenal AL has management responsibility for research and development procurement supply and maintenance of assigned rocket missile and related programs It consists of approximately 8 400 military and civilian personnel Small liaison offices are maintained at missile facilities and industrial locations throughout the United States and overseas but a majority of the command mission is accomplished at Redstone Arsenal

US Army Mobility Equipment Command (MECOM) with headquarters at St Louis MO is responsible for integrated materiel management production and maintenance engineering basic and applied research design and development of materiel design test and evaluation and procurement for assigned categories of equipment Types of equipment involved are barriers and bridging water purification equipment construction equipment rail marine and amphibious equipment power generators materials and fuel handling equipment industrial engines and turbines and environmental control diagnostic equipment The MECOM complex includes the headquarters and arsenals at Rock Island IL and Watervliet NY consisting of approximately 8 500 military and civilian employees

US Army Munitions Command (MUCOM) with headquarters at Picatinny Arsenal Dover NJ is responsible for integrated commodity management of conventional nuclear and chemical munitions More than 1 000 military and 18 400 civilian personnel at 30 installations located in 21 states from coast to coast are involved in the research development procurement supply maintenance transportation and demilitarization of items ranging in size from the 5 56mm small arms round for the M16 rifle to the 175mm artillery projectile In addition 39 500 contractor employees work in 19 production and assembly facilities referred to as GOCO (Government-owned contractor operated) plants In addition to these MUCOM manages three commodity R&D centers Edgewood Frankford and Picatinny Arsenals two production arsenals at Pine Bluff and Rocky Mountain and the Ammunition Procurement and Supply Agency at Joliet IL which directs operation of the GOCO plants

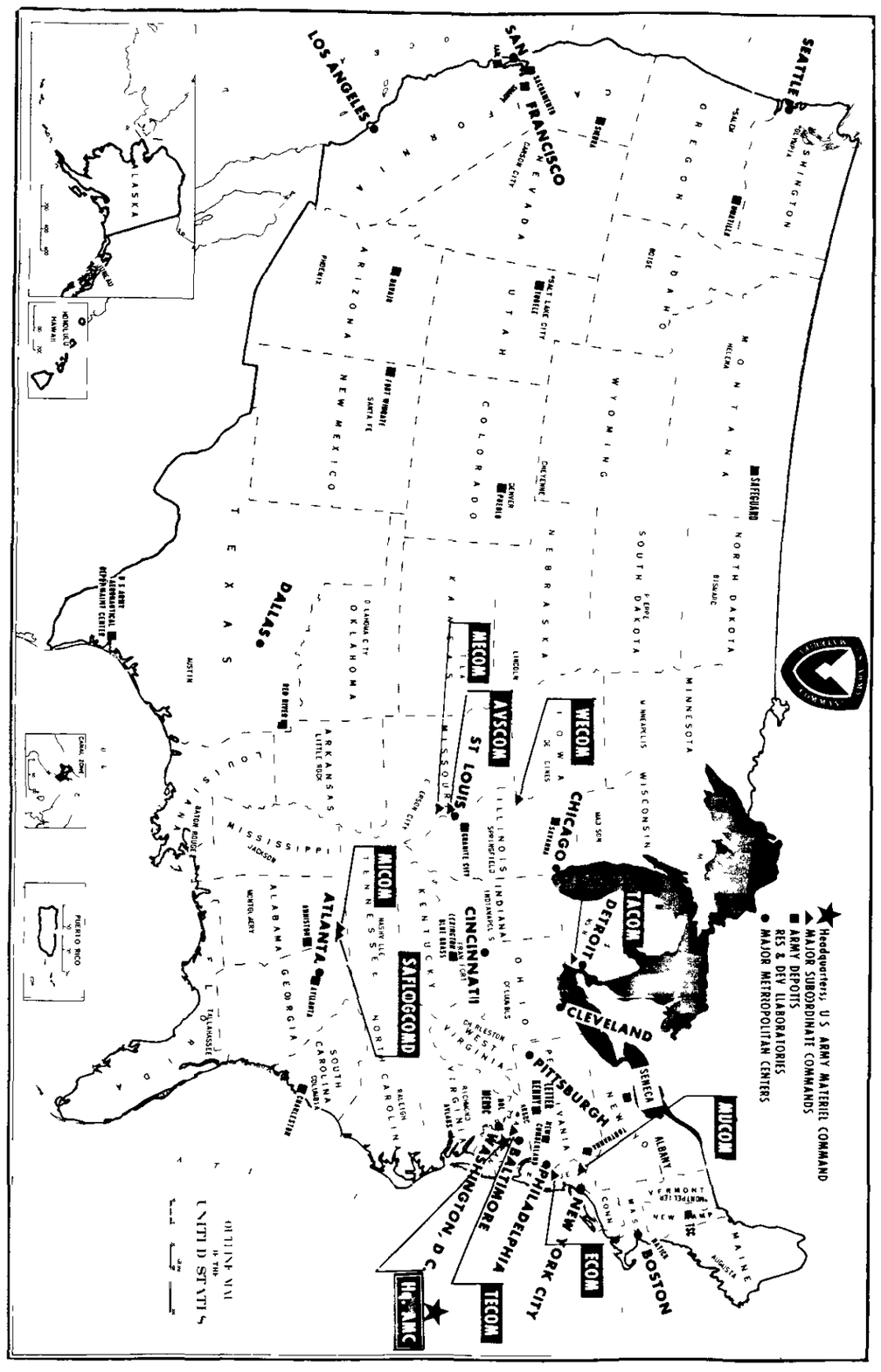
US Army Tank Automotive Command (TACOM) with headquarters at Warren MI is responsible for integrated management of vehicles and repair parts in use around the world by the Army Navy Air Force Marine Corps and allied nations procurement of materiel ranging from nuts and bolts to tanks applied research development and engineering of tank automotive vehicles and components for the Army and other Defense Department agencies and development of technical doctrine policies and procedures for operation service and maintenance of tank automotive materiel TACOM employs approximately 5 200 military and civilian personnel

US Army Weapons Command (WECOM) with headquarters at Rock Island IL is responsible for integrated commodity management of weapons including gun air defense weapons artillery weapons infantry weapons crew served weapons mortars recoilless rifles surface vehicle and aircraft mounted weapons and infantry and conventional artillery launching devices excluding rocket and missile launching and related ground support equipment WECOM is also responsible for fire control materiel and common type tools equipment and sets used in Army maintenance shops as well as for the technical coordination of test measurement and diagnostic equipment The WECOM complex includes the headquarters and arsenals at Rock Island IL and Watervliet NY consisting of approximately 8 500 military and civilian employees

US Army Test and Evaluation Command (TECOM) with headquarters at Aberdeen Proving Ground MD is the primary testing agency of the US Army The command is responsible for the planning conducting and reporting of engineering expanded service check and initial production tests of Army materiel for providing test and evaluation service to the commodity commands and project managers and participating in troop tests when requested to do so by the responsible command The testing organization consists of six service test boards two environmental test activities five proving grounds one of which also serves as an environmental test activity and a national missile range These are located throughout the Continental United States and in the Panama Canal Zone and Alaska Its personnel strength is approximately 14 600 military and civilian in the scientific engineering technical and support categories

US Army SAFEGUARD Logistics Command (SAFLOG) located at Huntsville AL was organized 15 April 1968 with the mission of providing tactical logistical support and COMSEC design controlled secondary items exercising integrated commodity management (except for research development and system acquisition and installation) of SAFEGUARD system tactical and tactical support equipment materiel Depot support is provided from the SAFEGUARD Army Depot located at Glasgow AFB MT

AMC CONUS Depot System The AMC CONUS depot system is comprised primarily of 16 depots and one maintenance activity namely the US Army Support Center Richmond VA These installations are under operating control exercised by the Deputy Commanding General for Logistics Support (DCGLS) The mission of the AMC depot system accomplished through the skills of about 42 000 military and civilian personnel is to provide for the receipt storage issue maintenance and disposal of assigned commodities as the primary storage and distribution points for the Army wholesale supply system to provide installation support to attached and tenant organizations and to operate such other facilities as may be assigned



GLOSSARY

AAH	Advanced Attack Helicopter
AAO	Authorized Acquisition Objective
AAT	Additional Aid, Thailand
AAWS	Advanced Aerial Weapons Systems
ABF	Availability Balance File
ACCNET	Army Command & Control Network
ACSA	Assistant Chief of Staff, Army
ACSC-E	Assistant Chief of Staff, Communications-Electronics
ACSFOR	Assistant Chief of Staff for Force Development
ADM	Atomic Demolition Munitions
ADP	Automatic Data Processing
ADPM	Assistant Deputy Project Manager
AEC	Atomic Energy Commission
AFP	Armed Forces of the Philippines
AIF	Army Industrial Fund
ALMC	Army Logistics Management Center
ALMSA	Automated Logistics Management Systems Agency
ALO	Authorized Level of Organization
ALPHA	AMC Logistics Program Hardcore Automated
AMC	Army Materiel Command
AMCHO	Army Materiel Command Historical Office
AMCID	Army Materiel Command Installations Division
AMCS	Advanced Mechanical Control System
AMETA	Army Management Engineering Training Agency
AMMRC	Army Materials & Mechanics Research Center
AMSAA	Army Materiel Systems Analysis Agency
AMSAM	Army Materiel System Acquisition Manager
ANAD	Anniston Army Depot
AP	Anti-personnel
APE	Army Program Evaluation
APSA	Ammunition Procurement Supply Agency
AR/AAV	Armored Reconnaissance Airborne Assault Vehicle
ARADMAC	Army Aeronautical Depot Maintenance Center
ARDC	Aberdeen Research & Development Center
ARPA	Advanced Research Projects Agency
ARSCOM	Armament Systems Command
ARTADS	Army Tactical Data Systems
ASA(I&L)	Assistant Secretary of Army (Installations & Logistics)
ASARC	Army System Acquisition Review Council
ASF	Army Stock Fund
ASP	Annual Service Practice
AT	Anti-Tank
ATAD	Atlanta Army Depot
AT/AV	Anti-Tank/Anti-Vehicle

AUTODIN	Automatic Digital Network
AVDS	Air-Cooled, V-Type, Diesel, Super-Charged
AVIONICS	Aviation/Electronics
AVLB	Armored Vehicle Launch Bridge
AVSCOM	Aviation Systems Command
BCWS	Biological/Chemical Warfare Service
BECAMP	Ballistic Environmental Measurements Program
BEMAR	Backlog of Essential Maintenance & Repair
BF	Blast Fragmentation
BHC	Bell Helicopter Company
BOIP	Basis of Issue Plans
BOM	Bills of Material
BRL	Ballistics Research Laboratory
CADS	Containerized Ammunition Distribution System
CAMERA	Command Management Review and Analysis
CAMS	Cybernetic Anthropomorphus Machine Systems
CB	Chemical-Biological
CCB	Configuration Control Board
CCE	Commercial Construction Equipment
CCIP	AMC Career Intern Program
CCM	Counter Counter-Measures
CDCEC	Combat Development Command Experimental Command
CEEIA	Commumications-Electronics Engineering Installation Agency
CER	Complete Engineering Releases
CFE	Contractor Furnished Equipment
CHAD	Charleston Army Depot
CINCPAC	Commander in Chief, Pacific
CIP	Component Improvement Program
COA	Comptroller of the Army
CONARC	Continental Army Command
CONDEC	Consolidated Diesel Electric Corporation
CONSSTOCS	Contingency Support Stocks
CORC	Chief, Office of Reserve Components
COSIS	Care of Supplies in Storage
CPFF	Cost Plus Fixed Fee
CPIF	Cost Plus Incentive Fee
CSDP	Command Supply Discipline Program
CSM	Control & Synchronization Master
CSS	Control & Synchronization Slave
CTP	Coordinated Test Program
CW	Continuous Wave

DAR&D	Department of Army Research & Development
DASA	Defense Atomic Support Agency
DCAS	Defense Contract Administration Services
DCGMA	Deputy Commanding General for Materiel Acquisition
DCL	Direct Communications Link
DCP	Development Concept Paper
DCSLOG	Deputy Chief of Staff for Logistics
DDR&E	Director, Defense Research-Engineering
DEPSECDEF	Deputy Secretary of Defense
D&F	Determination & Findings
DIDO	Directional Doppler
DLSC	Defense Logistics Service Center
DMIS	Directorate for Management Information Systems
DMRB	Depot Maintenance Review Board
DMUP	Defense Materiel Utilization Program
DNA	Defense Nuclear Agency
DNSS	Defense Navigation Satellite System
DPM	Deputy Project Managers
DPSK	Differential Pulse Shift Key
DSA	Defense Supply Agency
DSARC	Defense Systems Acquisition Review Council
DSCS	Defense Satellite Communications System
DSIP	Development Support and Integration Program
DSS	Direct Support System
DST	Developmental Suitability Test
DTC	Deseret Test Center
EARC	US Army Equipment Authorization Review Center
ECM	Electronic-Countermeasure
ECOM	Electronics Command
ECP	Engineering Change Proposal
ED	Engineering Design
EKE	Expected Kinetic Energy
EMP	Electromagnetic Pulse
EOE	Element of Expense
EOH	Equipment on Hand
ET/EST	Engineering Test/Expanded Service Test
EUSA	Eighth US Army
EVT	Expansible Van Truck
FAAR	Forward Area Alerting Radar
FAE	Fuel Air Explosive
FAMECE	Family of Military Engineer Construction Equipment
FHMA	Family Housing Management Account
FLIR	Forward Looking Infrared Radar
FMOD	Federal Ministry of Defense
FRG	Federal Republic of Germany
FSD	Full Scale Development

GADES	Gun Air Defense Effectiveness Study
GAO	Government Accounting Office
GCG	Guidance Control Group
GE	General Electric
GFE	Government Furnished Equipment
GFM	Government Furnished Materiel
GSA	General Services Administration
HASC	House Armed Services Committee
HDL	Harry Diamond Laboratories
HE	High Explosive
HET	Heavy Equipment Transporter
HIPAR	High Power Acquisition Radar
HMD	Helmet Mounted Display
HMFK	HAWK Maintenance Facility, Korea
ICCS	Interim Contingency Communications Subsystem
ICD	Interface Control Documentation
ICF	Interconnect Facility
ICP	Inventory Control Points
ICTT	Intensified Confirmatory Troop Test
ICWG	Interface Control Working Group
IFF	Identification, Friend or Foe
IIGCS	Imperial Indian Gendarmerie Communications System
IIP	Implementation & Installation Plan
ILS	Integrated Logistics Support
ILSMT	Integrated Logistic Support Management Team
IMPACT	Improved Management of Procurement & Contracting Techniques
IMSO	Initial Materiel Support Office
INDOCOM	Indonesian Communications System
INSM	Integrated Weapon Support Management
IOE	Indicators of Effectiveness
IPR	In Process Review
IPT	Initial Production Tests
I&SA	Installations & Services Agency
ISIS	Integral SPAR Inspection System
JCS	Joint Chiefs of Staff
JRA	Joint Responsibility Agreements
JTCG	Joint Technical Coordination Group
KE	Kenetic Energy
KWN	Korea Wideband Network

LAC	Lockheed Aircraft Company
LCSS	Land Combat Support System
LEAD	Letterkenny Army Depot
LEDS	Light Emitting Diodes
LIF	Logistics Intelligence File
LIN	Line Item Numbers
LOC	Lines of Communication
LOFAADS	Low Altitude Forward Area Air Defense System
LOW	Link Order Wire
LS&E	Long Supply and Excess
LSPA	Logistics Systems Policy Committee
LSSA	Logistics Systems Support Agency
LT	Light Terminals
MAC	Management Advisory Council
MAP	Military Assistance Program
MASF	Military Assistance Service Funded
MASSTER	Mobile Army Sensor System Test, Evaluation & Review
MBT	Main Battle Tank
MCA	Military Construction, Army
MEPGS	Mobile Electric Power Generating Sources
MERDC	Mobility Equipment Research & Development Center
MHE	Materials Handling Equipment
MIC	Microwave Integrated Components
MICOM	Missile Command
MIDA	Major Item Data Agency
MILSTAMP	Military Standard Transportation & Movement Procedures
MILSTRIP	Military Standard Requisition & Issue Procedure
MIMIP	Major Item Management Improvement Program
MIPR	Military Interdepartmental Purchase Request
MMH/FM	Maintenance Man-Hour/Flight Man-Hour
MMT	Maintenance Management Team
MN	Materiel Need
MN(PI)	Materiel Need (Product Improvement)
MORSL	Mobilization Reserve Stockage List
MOS 76V	Equipment Storage Specialist
MOU	Memorandum of Understanding
MPPRC	Materiel Procurement Priority Review Committee
MSC	Major Subordinate Command
MT	Medium Transportable
MTT	Materiel Testing Technology
MUCOM	Munitions Command
MUSAT	Minimum Usable Satellite

NASA	National Aeronautics and Space Administration
NCAD	New Cumberland Army Depot
NDT	Non-destructive Testing
NICP	National Inventory Control Point
NLABS	Natick Labs
NMP	National Maintenance Point
NVS	Night Vision System
OA	Obligation Authority
OCRD	Office Chief of Research & Development
O&M	Operation & Maintenance
OMA	Operations & Maintenance, Army
OMB	Office of Management & Budget
OPLAN	Operational Plan
OSD	Office of the Secretary of Defense
OSDOC	Offshore Discharge of Containers
OT&E	Operational Test & Evaluation
PAC	Processing Appropriation Code
PANS	Positioning & Navigation Systems
PBMH	Plastic Body Metal Head
PCM	Pulse Code Modulation
PCR	Program Change Request
PCRS	Probability/Cost Reduction Study
PEMA	Procurement of Equipment & Missiles, Army
PHS	Pilot Helmet Sight
PM-MEP	Project Manager - Mobile Electric Power
PMP	Project Master Plan
POL	Petroleum-Oils-Lubricants
POMCUS	Prepositioned Overseas Materiel Configured to Unit Sets
PPR	Program Progress Review
PQAP	Procurement Quality Assurance Program
PQMR	Program Quality Materiel Requirement
PROCO	Programmed Combustion
PROMAP	Program for the Refinement of the Materiel Acquisition Process
PSK	Phase Shift Keying
PTFD	Personnel, Training and Force Development
QMR	Qualitative Materiel Requirement

RAC	Research Analysis Corporation
RAM	Reliability & Maintainability
RDAT	Research, Development and Testing
RDTE	Research, Development, Test & Evaluation
RECAP	Review & Command Assessment Project
RECOUP	Rebuild Components - Underbuy New Procurement
REFLEX	Reconcilication of Workload, Funds & Manpower
REMBASS	Remotely Monitored Battlefield Surveillance System
RFP	Request for Proposal
RFQ	Request for Quotation
RIA	Rock Island Arsenal
RIE	Range of Incentive Effectiveness
RIF	Reduction in Force
RISE	Reliability Improvement of Selected Equipment
ROC	Republic of China
ROKA	Republic of Korea Army
ROKAF	Republic of Korea Air Force
ROKAV	Republic of Korea Army, Vietnam
ROR	Rear Operating Radar
RRAD	Red River Army Depot
RTA	Royal Thailand Army
RTD	Random Time Delay
SAAD	Savanna Army Depot
SAAM	Special Assignment Airlift Mission
SAIMS	Selected Acquisition Information and Management Systems
SALS	Standard Army Logistics System
SAM-D	Surface-To-Air-Missile Development
SAMPAM	Army Materiel Plan for Ammunition
SAR	Selected Acquisition Report
SATCOM	Satellite Communications
SCAMP	Small Caliber Ammunition Modernization Program
SCC	Standard Commodity Command
SCSC	Schedule Control System Criteria
SCO	Support Coordinating Office
SDP	System Development Plan
SEA	SouthEast Asia
SEAD	Seneca Army Depot
SELCOM	AMC Select Committee
SEN	Satellite Evaluation Network
SGS	Swiveling Gunner's Station
SHAD	Sharpe Army Depot
SIAD	Sierra Army Depot
SIGINT	Signal Intelligence
SIMS	Selected Item Management System
SISMS	Standard Integrated Support Management System

SLI	Shelf-Life Items
SPEEDEX	Special Project for Electronic Equipment at Depots Extended
SSA	Source Selection Authority
SSA	Supply Support Arrangements
SSAC	Source Selection Advisory Council
SSEB	Source Selection Evaluation Board
SSN	Standard Study Numbering
STARCOM	Strategic Army Communications
STRATCOM	Strategic Command
SYMWAR	System for Estimating Materiel Wartime Attrition and Replacement Requirements
TAADS	The Army Authorization Documents System
TACOM	Tank-Automotive Command
TACSATCOM	Tactical Satellite Communications Program
TADDS	Target Alert Data Display Set
TADS	Tactical Automatic Digital Switch
TAGO	The Adjutant General's Office
TASS	The Army Study System
TAM	Teletypewriter Adopter Module
TAMMS	The Army Maintenance Management System
TCCP	Texaco Controlled Combustion Process
TCE	Tow Control Equipment
TCN	Territorial Command Network
TDA	Table of Distribution & Allowances
TDMA	Time Division Multiple Access
TDP	Technical Data Package
TEAD	Tooele Army Depot
TEAM-UP	Test, Evaluation, Analysis, Management Uniformity Plan
TECOM	Test & Evaluation Command
TFT	Thin-Film Transistor
TIG	Transmission Identification Generator
TMDE	Test, Measurement & Diagnostic Equipment
TOAD	Tobyhanna Army Depot
TOS	Tactical Operations System
TOAMAC	The Optimum Army Materiel Command
TOD	Theater Oriented Depot
TOE	Table of Organization & Equipment
TOS	Tactical Operations Systems
TPVM	Technical Proposal Verification Models
TRCS	Tactical Radio Communication System
TROSCOM	Troop Support Command
TVP	Technical Visit Program

UAPM	Utility Aircraft Project Manager
UHF	Ultra High Frequency
USA	US Army
USACDC	US Army Combat Development Command
USAF	United States Air Force
USAGMPC	US Army General Materiel & Parts Center
USAILS	US Army International Logistics Command
USAMATCOMEUR	US Army Materiel Command, Europe
USAMIDA	US Army Major Item Data Agency
USAREUR	US Army, Europe
USARPAC	US Army, Pacific
USDLG	US Defense Liaison Group
USMC	United States Marine Corps
USN	United States Navy
UTTAS	Utility Tactical Transport Aircraft System
VE	Value Engineering
VP	Validation Phase
VRFWS	Vehicle Rapid Fire Weapon System
WECOM	Weapons Command
WSMR	White Sands Missile Range
WWTCIP	Worldwide Technical Control Improvement Program

DISTRIBUTION LIST

Headquarters, DARCOM

Aviation Office	1
Battlefield Systems Integration	1
Chaplain	1
Command Counsel	1
Communications-Electronics and US Army Communications Command, DARCOM	1
DCG for Materiel Development	1
DCG for Materiel Readiness	1
Development and Engineering	1
Equal Employment Opportunity Ofc	1
Historical Office	12
International Logistics	1
International Research and Development	1
Inspector General	1
Installations and Services	1
Laboratory and Development Command Management	1
Management Information Systems	1
Manufacturing Technology	1
Marine Corps Liaison	1
Materiel Management	1
Personnel Training and Force Development	1
Plans and Analysis	1
Plans, Doctrine and Systems	1
Procurement and Production	1
Product Improvement	1
Public Affairs	1
Quality Assurance	1
Safety Office	1
Secretary of the General Staff	2
Security Office	1
Service Support Activity	1
Readiness	1

Product/Project Managers (HQ,DARCOM)

Advanced Attack Helicopter	1
Army Container Oriented Distribution System	1
Chemical Demilitarization and Installation Restoration	1
DCS(Army) Communications System	1
MICV	1
Mobile Electric Power	1

Product/Project Managers (HQ,DARCOM)(con.)

Munitions Production Base Modernization and Expansion	1
Nuclear Munitions	1
Patriot, US Army Missile Cmd	1
SANG	1
Satellite Communications	1
SMOKE	1
Training Devices	1
UTTAS	1
XM-1 Tank System	1

Major Subordinate Commands

Armament Research & Development Command	4
Armament Materiel Readiness Cmd	38
Aviation Systems Command	13
Depot Systems Command	19
Electronics Command	19
International Logistics Cmd	2
Missile Materiel Readiness Cmd	17
Missile Research & Development Cmd	3
Mobility Equipment R&D Cmd	2
Natick R&D Command	1
Tank-Automotive Materiel Readiness Command	8
Tank-Automotive Research and Development Command	4
Test and Evaluation Command	8
Troop Support Command	3

Separate Installations & Activities

Automated Log Sys Agcy	1
Ballistics Research Labs	1
Catalog Data Agcy	1
Equipment Authorization Review Activity	1
Foreign Science & Technology Center	1
Harry Diamond Labs	1
Human Engineering Labs	1
Installation & Svcs Agcy	1
Logistic Assistance Office Europe	1
FORSCOM	1
Ft. Huachuca (ACCOM)	1

DISTRIBUTION LIST--(con.)

Separate Installations & Activities (con.)

Logistic Assistance Office (con.)	
Hawaii	1
TRADOC	1
Maintenance Management Center	1
Materials and Mechanics Research Center	1
Materiel Systems Analysis Activity	1
Military Packaging Training Center	1

Historical Offices

Army War College	2
Center of Military History	2
FORSCOM	2
Military History Research Collection	2
TRADOC	2

U. S. GOVERNMENT PRINTING OFFICE : 1977 O - 245-082